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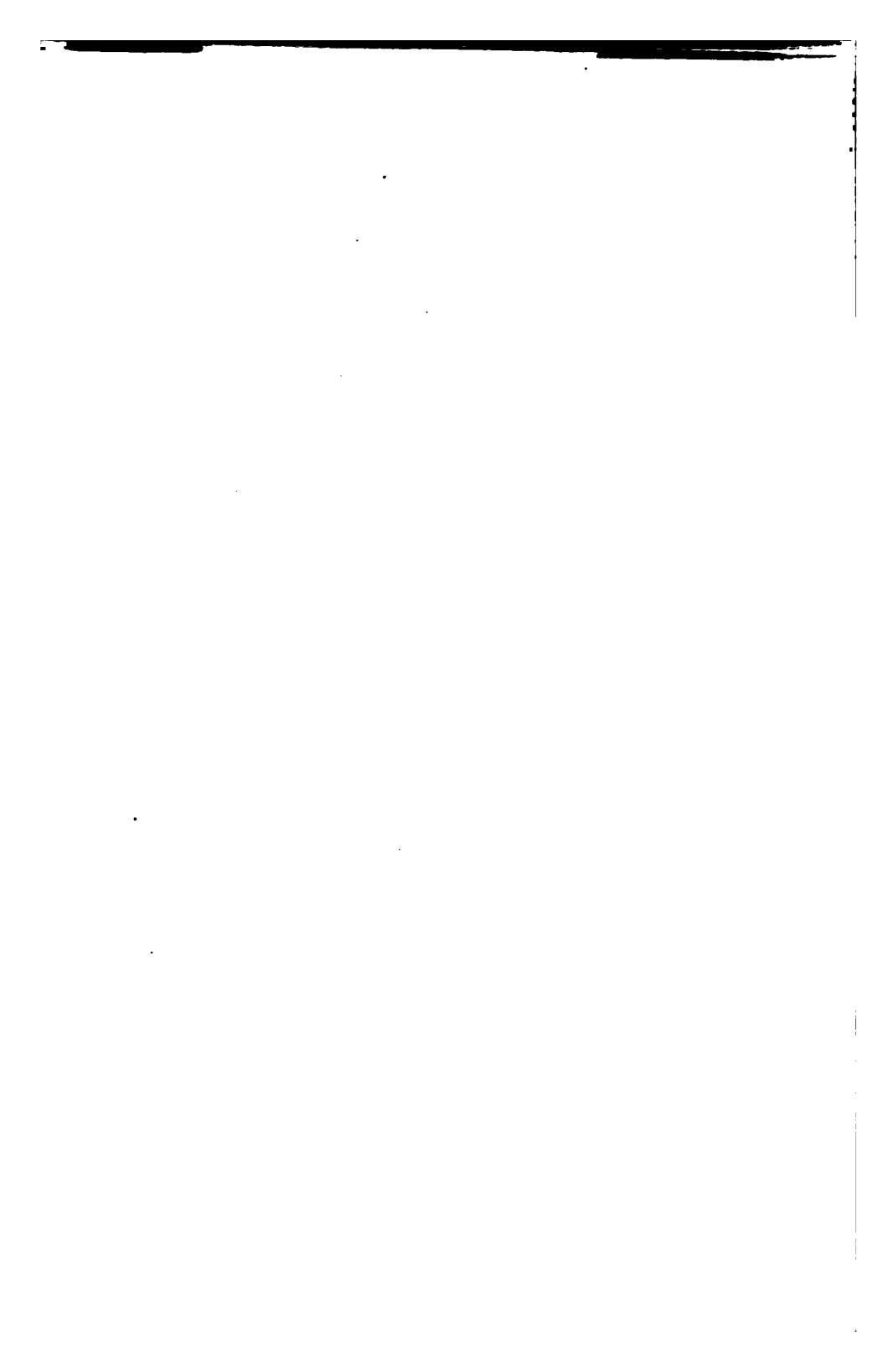
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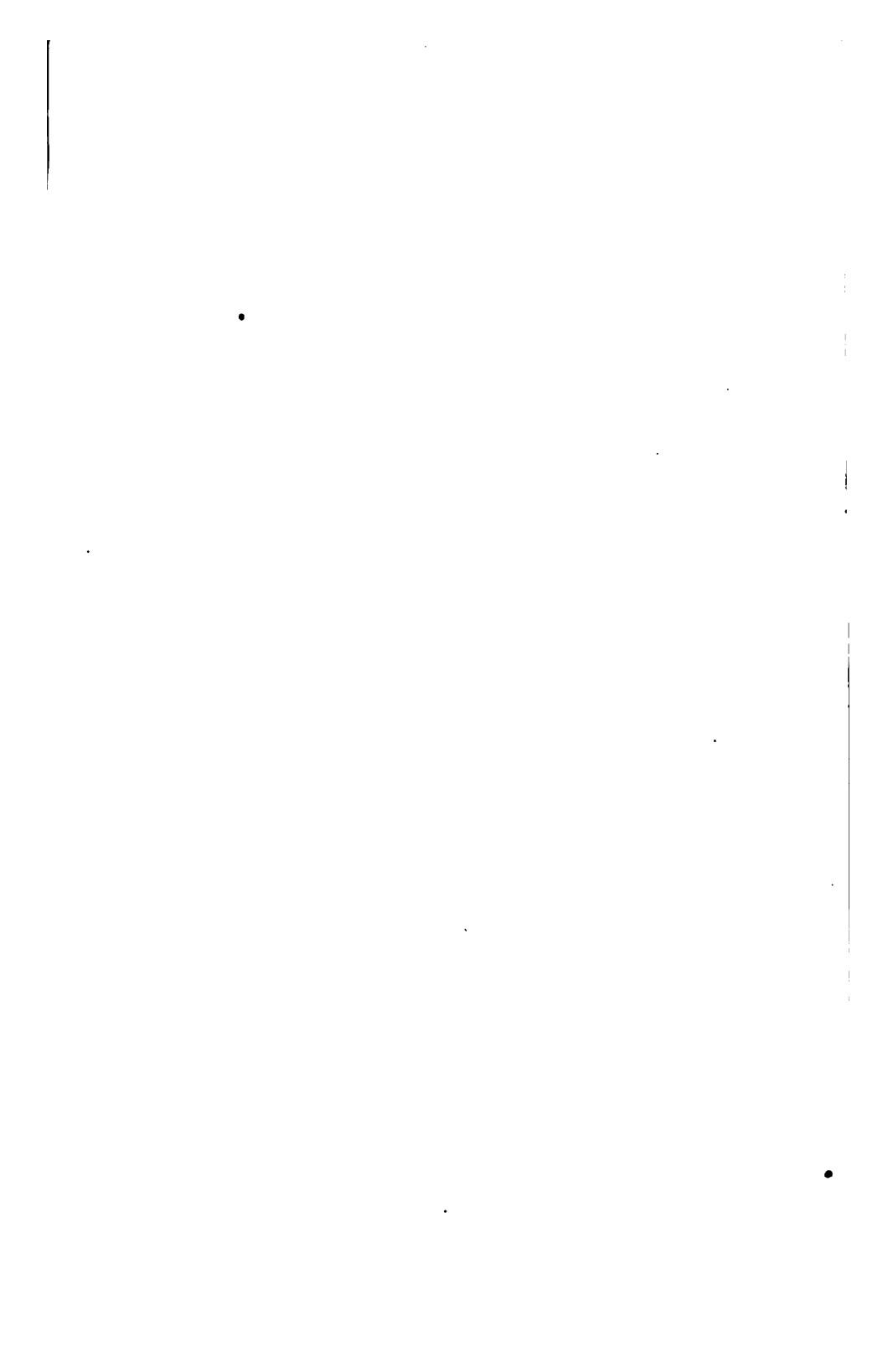
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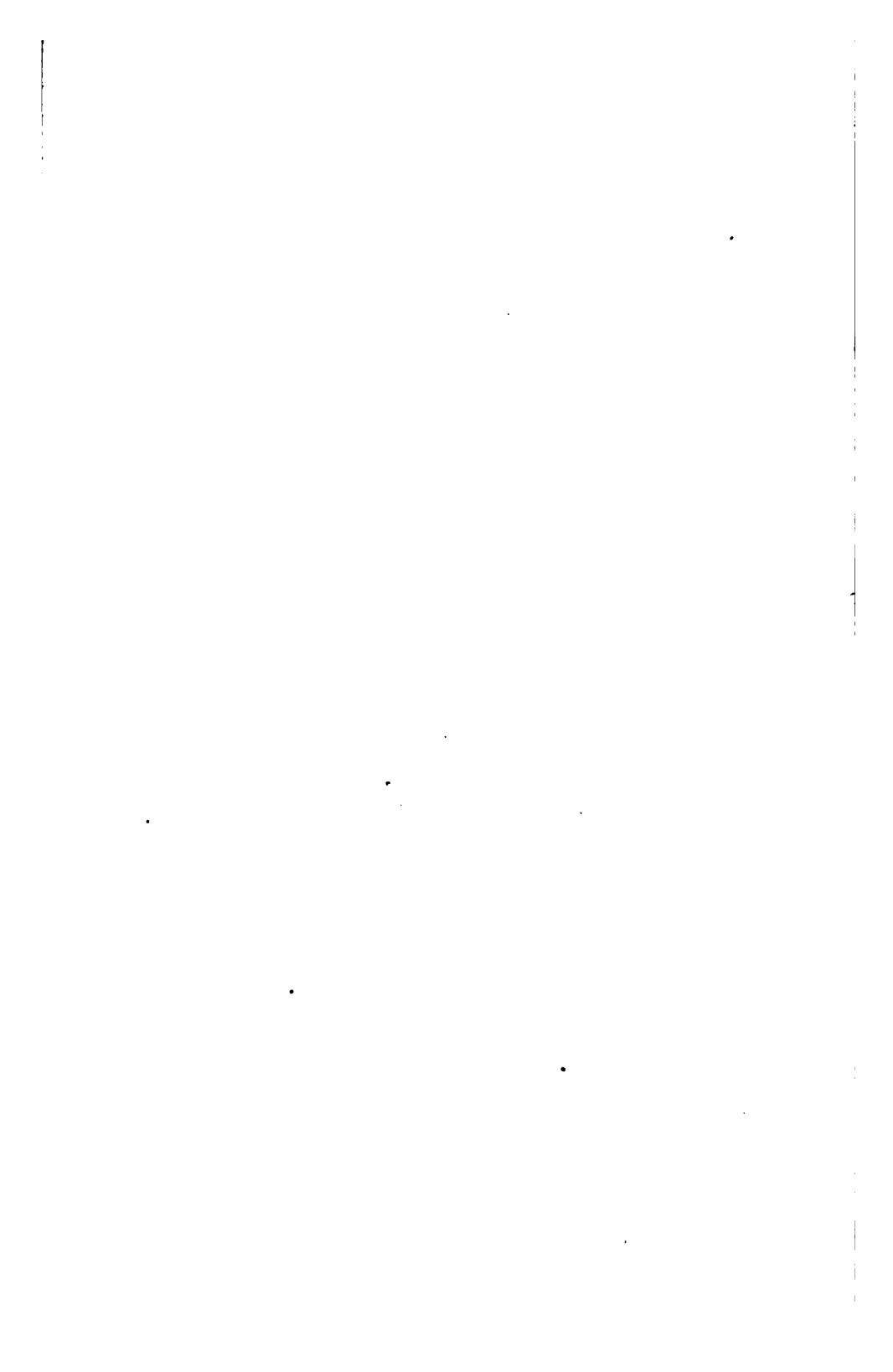


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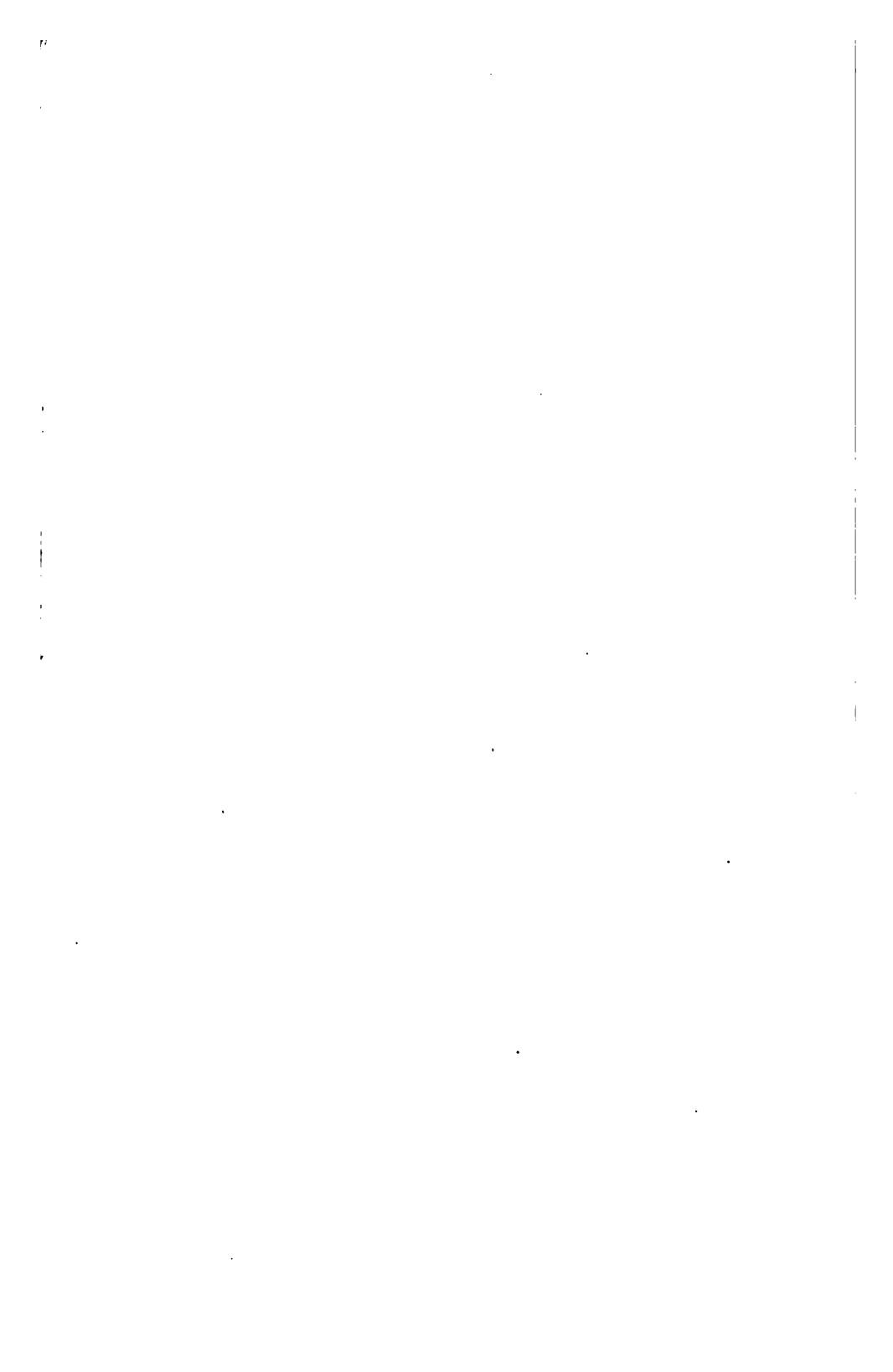
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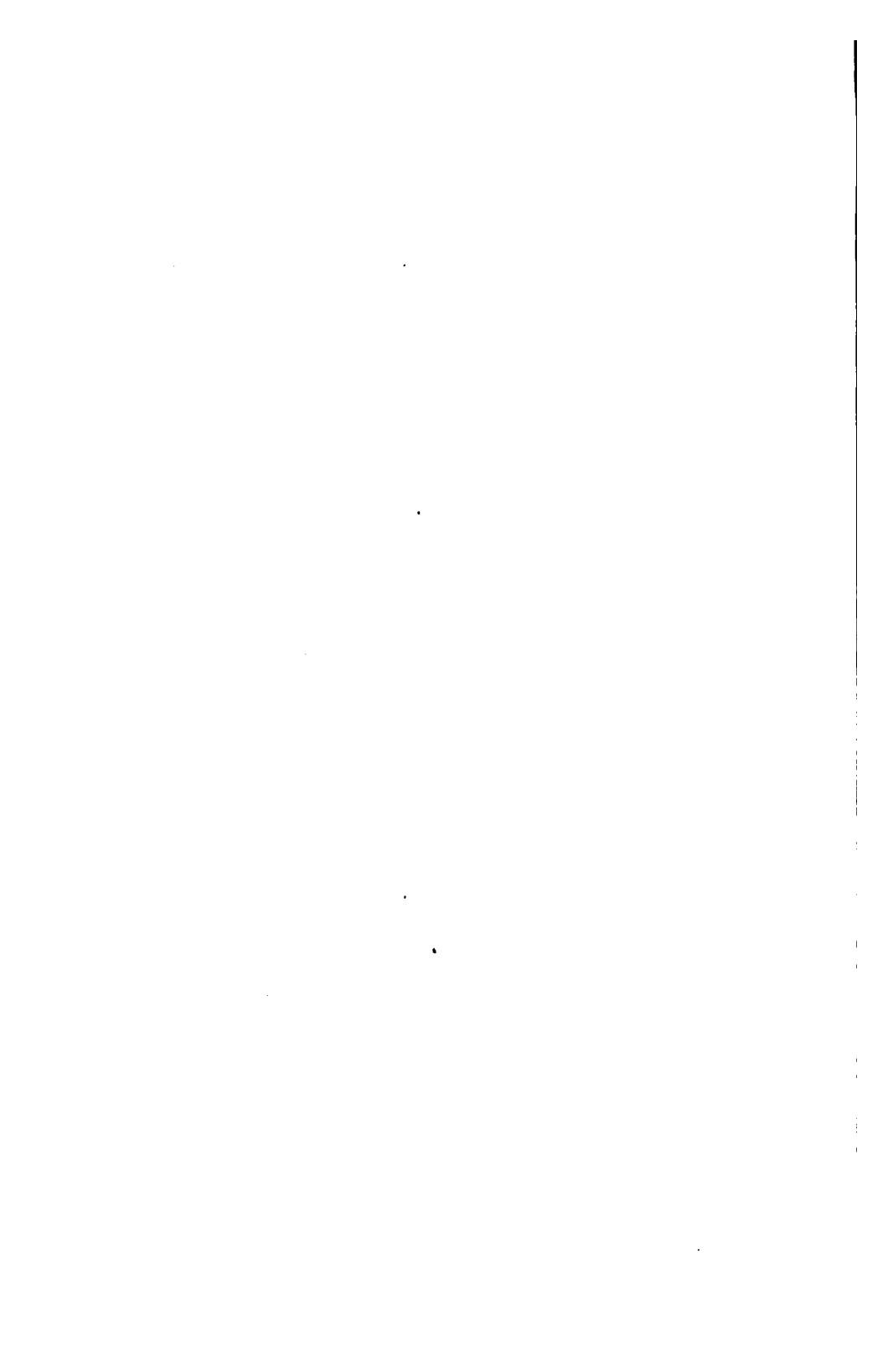
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¹ *Obstetrical Transactions*, London, vol. xx., 1878, p. 124.

² The pelvis of this woman and the internal genital organs are preserved in the Museum of Saint Bartholomew's Hospital.

SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

NOTES

ON THE

MORBID ANATOMY OF DOUGLAS'S POUCH.

BY

J. MATTHEWS DUNCAN, M.D.

I shall, in the following notes, describe chiefly what I have myself seen; and I shall, first of all, give a brief account of two cases which are rather monstrosities or malformations than examples of morbid anatomy, as that term is ordinarily used.

Dr. Champneys lately¹ showed to the Obstetrical Society of London the internal genital organs of a female. At the bottom of Douglas's pouch and on its anterior wall was a flat, pocket-like, secondary pouch, large enough to receive the first joint of the middle finger. It ended in an angle inferiorly, its lowest point being $1\frac{1}{2}$ inch below the level of the os uteri externum, where it might take part in forming a vaginal hernia.

Some years ago, along with Dr. Underhill, I dissected the pelvis of a bulky, married, woman who had no vagina. On examination,² the external genital organs appeared to be natural. An irregular, slightly elevated, hymen-like mucous

¹ *Obstetrical Transactions*, London, vol. xx., 1878, p. 124.

² The pelvis of this woman and the internal genital organs are preserved in the Museum of Saint Bartholomew's Hospital.

2 *Notes on the Morbid Anatomy of Douglas's Pouch.*

fold surrounded the part representing the vaginal orifice, where was a pit three-quarters of an inch deep and in contact with the peritoneum. The ovaries were present and had numerous cicatrices. The Fallopian tubes were three inches long. At the junctions of the tubes with the ligaments of the ovaries were fleshy nodules nearly as big as a pea, each tapering in a direction towards the other, and disappearing after a course of nearly an inch on the posterior surface of the bladder. The posterior surface of the bladder was smooth, covered by peritoneum; and when the posterior wall of the bladder was grasped between two fingers, nothing was felt that might be supposed to represent the uterus. There was nothing like a round ligament of the uterus to be seen or felt. The rectum was normal, except as to the extent of its peritoneal covering.

The peritoneum passing over the fundus of the bladder to its posterior surface covered it smoothly to about $2\frac{1}{2}$ inches below the level of a line joining the round ligaments of the ovaries, or to the indistinct vesico-sacral ligaments. The ovaries and Fallopian tubes lay near the margin or brim of the pelvis, separated from one another by the peritoneal layer of the posterior wall of the bladder, and when this was gently stretched, there was a peritoneal interspace of about four inches. The meso-salpinx was nearly natural, and was attached laterally to the peritoneum near the brim of the pelvis.

Beneath what would be the natural position of the lowest part of Douglas's space, was another deep peritoneal pouch communicating with the general peritoneal cavity by an opening bounded by the bladder, the vesico-sacral ligaments, and the rectum. This cavity was easily expanded, without stretching, so as to have at least two inches in diameter in all directions; and inferiorly it touched the perineal structures. The peritoneal lining extended to about an inch below the internal opening of the urethra; it covered the small mucous blind sac representing the vagina, and it covered the rectum to within an inch of the anus.

This amount of enlargement of Douglas's pouch, or descent of the peritoneal cavity, cannot be regarded as a new formation or mere expansion of a previously healthily or ordinarily constituted peritoneal pouch. It is not morbid in the usual sense of that word, but a malformation or extraordinary formation, to be classed with those malformations of the peritoneum often seen in deformities of the abdominal organs. But great though this unusual extension of peritoneal cavity is, it is yet far exceeded by morbid states which we shall hereafter describe.

In three cases of malformation closely resembling that described, that is, cases of absence of all traces of vagina and internal genital organs discoverable during life, I have carefully examined with my fingers the accessible portions of the pelvis, and have found mobility and looseness of parts, and other conditions scarcely to be described in words, which led me to believe that in them the same arrangement of peritoneum existed.

In cases of epithelial carcinomatous growths of the posterior lip of the cervix uteri invading the adjacent vaginal laquear, it sometimes happens that the prominent mass is not nearly so great as it seems. In such cases the projection is not solid throughout, but is formed by a fold of the affected tissues, causing a sort of doubling of them, and enclosing within it a sac of healthy peritoneum, or a descended portion of Douglas's pouch. The operator, when amputating such a mass, by ecraseur or galvanic wire, finds in the removed part a peritoneal pouch, and through the opening thus made in the peritoneal cavity he may pass his finger and feel the nearest intestinal folds; and this has repeatedly happened in my own experience.

Several cases are described in which intestinal hernia has descended towards the perineum, forcing the pouch of Douglas before it. Of this no example has come under my observation. But I have seen a remarkable hernia-like descent of this peritoneal fold through the vagina pushing the posterior wall of the passage before it and coming to bulge, like a prepuce of uterus, outside the vulvar orifice. The patient had occupied a bed in the Royal Infirmary of Edinburgh,¹ having an ovarian cystoma which had long been burst, and had discharged so copious an amount of very viscid clear jelly as to distend her abdomen extremely. An attempt was made to draw it off by paracentesis abdominis, but in vain, on account of its viscosity. In the latter weeks of her life a rounded firm tumour protruded from the vagina, sometimes more, sometimes less. It was regarded by the nurse as a falling of the womb, and was not carefully examined during life. At the post-mortem investigation made by Dr. Wyllie, it was found to be a hernia of Douglas's pouch. At the bottom of the recto-vaginal fold was an opening admitting two fingers, which established communication with the hernial sac, descending between the rectum and vagina, and then protruding into the latter. The sac was larger than a hen's egg. It was full of very viscid gelatinous ovarian fluid, which adhered to its peritoneal surface.

The practitioner searching, by digital vaginal examination,

¹ See *Obstetrical Transactions of Edinburgh*, vol. iv. p. 326.

for diseased ovaries, not rarely finds them prolapsed or descended below the level of the cervix uteri, and pushing the roof of the vagina before them in such a manner as implies great expansion and descent of Douglas's pouch. During life this condition can be clearly made out only when the ovaries are loose in the peritoneal sac, not adherent to it. In the Museum of St. Bartholomew's Hospital is a specimen of this descent, in a well-marked degree, of an ovary which is hypertrophied, being of the size of a hen's egg. The preparation is 2925 in the Museum Catalogue. The ovary appears to be quite loose in a new or lower Douglas's pouch, for its main bulk lies below the level of the os uteri. During life this could no doubt be easily felt, and the nature of the case might have been suspected.

The practitioner digitally examining, per vaginam or per rectum, can often feel that Douglas's space is empty, pushing his finger into it, inverting the peritoneum, and feeling the utero-sacral ligaments in various states of thickness and tightness and tenderness, bounding it to right and left; while his finger displaces the previously adjacent uterus and rectum, or uterus and other organ, such as ovary or fold of bowel.

On the other hand, he can often, in morbid conditions, feel that it is replete. When it is replete, it is also generally expanded and also generally descended. This state of repletion is often not felt, or very indistinctly made out, in cases of hydro-peritoneum or ordinary ascites, but sometimes it is clearly present. Especially distinct it is when a layer of fluid surrounds a prolapsed ovary, or still more when hydro-peritoneum surrounds an enlarged ovary or a fibroid projecting into and expanding the pouch.

Serum, pus, or blood accumulating in Douglas's space, fills it, expands or stretches it, and generally causes descent of it. When such fluids in this pouch are enclosed above by coherent or mutually agglutinated organs, the examining finger does not enter the pouch pushing the lowest or first reached part before it, but feels it as a convex and generally as a more or less solid mass, the feeling of fluid being often entirely absent, while the contents are both liquid and thin. And it must be added that the feeling of fluid is sometimes present when the contents are constituted by a soft solid.

Repletion of Douglas's pouch, with fluid enclosed superiorly by coherent organs, involves displacement of parts. The displacement caused by repletion of the rectum has been studied, and the observations of Pirogoff and Garson may be referred to. In rectal repletion the uterus is pushed forwards and upwards. The displacement caused by vesical distension has been also

attended to, and the observations of Pirogoff, Simpson, and Hart may be referred to. In vesical distension the uterus is pushed backwards, its fundus being moved backwards and downwards.

The displacements produced by repletion of the pouch of Douglas are not the same in all different cases, but there is, in the absence of any complication, a prevailing uniformity. The posterior vaginal wall and especially its upper parts are, along with the adjacent peritoneum, greatly extended or stretched, that is, they form a much greater surface. They are also pushed downwards and towards the posterior surface of the bodies of the pubic bones. The posterior wall bulges in a globose form into its own potential cavity. The rectum may be, in its middle third, similarly extended, having its cavity flattened between the pouch of Douglas and the sacrum, or it may be merely gently compressed, without extension, between the pouch and the sacrum. The uterus is pushed forwards to behind the pubic bones; and as accumulation in Douglas's space increases, it is pushed upwards till its cervix is at or above the level of the upper border of the symphysis pubis—conditions that imply great displacement and distortion of the bladder.

The amount of development or extension and descent of the posterior wall of the vagina varies greatly, and this is not regulated merely by the degree of repletion of the pouch of Douglas or the quantity of fluid contained in it. In other words, the roof of the cavity, formed by coherent organs, may, by increasing repletion, be developed and ascend to compensate for diminished development of the pouch inferiorly, and descent into the pelvic excavation or beyond it. What the forces are which, in a chronic case for instance, determine the development and descent of the lower part of the cyst, that is, of Douglas's pouch; or, on the other hand, the development and ascent of the roof of the cyst, that is, of the coherent viscera, it is difficult to determine. No doubt softness and easy displaceability or mobility forms an element of it, but it appears to me to be chiefly regulated by the pressure relations of the abdomen or its so-called retentive power. When intra-abdominal pressure is small and natural, or great, there will be descent. When intra-abdominal pressure is absent or negative, there will be ascent.

It is not fluids only which may occupy and distend Douglas's pouch, but also, occasionally, a retroverted uterus, whether gravid or not, an enlarged ovary, or a fibroid, or folds of intestine, or an extra-uterine foetation.

The great degree of development and descent of the posterior

vaginal wall is often a subject of interesting clinical demonstration. Lately, in "Martha," I opened a uterine haematocele of considerable size, occupying the whole pelvic excavation and bulging upon the orifice of the vagina. The slightly elongated uterus was lying behind the lowest part of the abdominal wall, its cervix being felt at the upper margin of the symphysis pubis. The opening made by the bistoury into Douglas's pouch was not more distant than an inch from the vulva. Students who might naturally have difficulty in regarding this as an incision into the peritoneal cavity were convinced by the predicted results of examination a week or so afterwards, when the contents of the pouch were completely discharged and the parts had resumed nearly their natural position. Then the scar of the incision was reached, only after intrusion of the whole length of the finger, and found just behind the cervix, which part also was now nearly in its natural situation. Similar demonstrations I have repeatedly made in cases of serous distension of the pouch, or of ordinary retro-uterine perimetric abscess.

The descent and especially the development of Douglas's pouch make it an easy matter for the surgeon to interfere with it. In the natural condition it would be difficult or impossible to introduce a bistoury into Douglas's pouch without doing more than was intended; but when it is pushed down it is easily reached, and when it is expanded it can be opened without any danger of the bistoury or trocar touching parts other than those in which the wound is desired.

The pouch of Douglas may be pushed down much farther than in any of the cases to which we have alluded, far beyond the limits of the pelvic cavity or even of the vulva. This is common in one set of cases, those of procidentia, where the pouch comes generally to lie in contact with the lowest part of the extruded supra-vaginal portion of cervix. But I have seen it even further protruded when replete with pus than it is in cases of great procidentia. The case was one of hydatids in Douglas's pouch, with general pelvic prolapse, and especially procidentia of the posterior vaginal wall. The procidentia was prevented by pessary, but only imperfectly; and she gave up its use. She was seized with peritonitis, and was brought once more into the hospital, apparently moribund. From this state she recovered. Abscess formed in Douglas's pouch, which was now protruded far beyond the vulva, forming a tumour there larger than an adult foetal head, the uterus remaining high in the pelvic cavity. I opened this freely, and putridly foetid gas, and pus, and hydatids were discharged in large quantity. The patient survived for some weeks. On a post-mortem examination, hydatids were found in

various parts of the abdomen, and the conditions diagnosed in the pelvis were confirmed by the autopsy.

Rare cases are recorded by Rokitansky and others, in which the pouch of Douglas and adjacent vagina, distended by a retroflexed and retroverted uterus, have sloughed, leaving the peritoneal covering of the fundus uteri bare. Dr. Brewer has put on record¹ a case in which, through an opening into the vagina, an ovarian cyst was pushed beyond the vulva. The woman was in labour, the head descending. The tumour was successfully removed. The cyst is No. 3085 in the Museum of St. Bartholomew's Hospital.

In one case, which I observed, the fundus of a retroverted uterus pushing before it the pouch of Douglas descended, not into the vagina, but into the rectum, and so far that the fundus projected through the anus when strong bearing-down effort was made.

In conclusion, another great rarity may be mentioned. It was observed by Freund.² In it there was great procidentia, and the pouch of Douglas descended, unchanged, carrying with it the rectum to the lowest part of the prolapsed mass. In most cases of procidentia there is no rectocele or only slight pouching anteriorly above the sphincter, and in such cases the relations of Douglas's pouch to the rectum are greatly changed, descent taking place apparently with elongation or development of the part of the peritoneal reflection which joins the rectum and uterus, a long and wide extent of posterior vaginal wall being covered by peritoneum. This peritoneal development is, in ordinary procidentia, closely analogous to that which takes place when the pouch of Douglas becomes filled with any fluid. Then, also, as already described, the posterior vaginal wall is extensively covered in its extended state by peritoneum. In Freund's case there is no reason to suppose that the peritoneum of Douglas's pouch was in any way materially altered.

¹ *Obstetrical Transactions*, vol. xx. p. 184.

² In Fritsch, *Lageveränderungen der Gebärmutter*. S. 180. *Handbuch der Frauenkrankheiten*, redigirt von Billroth. III. Abschnitt.

ON
OSTEAL OR PERIOSTEAL CACHEXIA.
BY
SAMUEL GEE, M.D.

The following notes are more imperfect than they would have been could I have made them otherwise. Such as they are, they seem to relate to a kind of disease whereof the foremost characters are cachexia and swelling of bone.

With regard to the cachexia, it is to be especially noted that there were no reasons for connecting it with disease of the spleen, liver, or lymphatic glands, with leucocythaemia, or albuminuria. In two of the patients there was a slight haemorrhagic tendency, common in cachexia.

With regard to the bone disease, the questions of rickets and of syphilis at once arise. And first as to rickets. Three of the patients were rickety, in respect of the beading of the ribs. But rickets alone begets not so deep a cachexia, unless associated with enlargement of the spleen. Nor is enlargement of bones, such as described in the notes, known to be a sign of rickets. The second case might almost be called mollities ossium : the others were more like periostitis.

Next as to syphilis. None of the patients showed any proof of syphilis, unless the state of the skull in the third case be so deemed. The possibility of syphilis we cannot deny ; but this cachexy, if a form of syphilis, is a form hitherto unknown to me.

CASE I.

H., a baby, 14 months old ; seen with Dr. Grosvenor of Notting Hill, on October 23, 1878. For two months the lower half of the right femur and the right tibia had been enlarging and painful. When I saw the child the enlargement of the

bones mentioned was considerable ; there were no signs of subperiosteal suppuration. The pallor was extreme. There was no fever. No signs of any internal disease, except of slight pulmonary catarrh. The next day the child died.

CASE II.

F. M., a male, aged 12 months, seen with Dr. Sheldon of Notting Hill, on November 30, 1878. Nothing noteworthy in his stock, unless it be that there have been several deaths from phthisis pulmonalis in his mother's family. He is the fifth child; the others are healthy. F. also was healthy until he was $7\frac{1}{2}$ months old, when he began to pine, and to suffer from pains in his limbs. Soon afterwards the thigh and other bones began to enlarge. Now there is a deep cachexia ; no heat of skin ; great sweats about head ; great tenderness of body. Liver and spleen seem natural ; no physical signs of disease of any of the organs of the chest or belly. A small lump, the bigness of a cherry stone, showing dark through the skin, in the lower dorsal region, and a little to the right of the spine, has been seen for two weeks. Great enlargement of the femora, scapulae, heads of humeri, carpal ends of radii. Very weak in the back. During each inspiration the chest becomes thus deformed—the whole front sinks inwards between two lines drawn perpendicularly through the anterior axillary folds, so that on a horizontal section the chest would be kidney-shaped. The ribs bend in the bone much outside the costo-chondral joint ; the deformity is quite unlike that of rickets ; the sternum recedes. The ends of the ribs are not much enlarged ; the anterior fontanelle is nearly closed : he has six teeth. He died December 7, 1878, "without any other marked symptoms than when we saw him" (Dr. Sheldon).

CASE III.

M., a girl, 12 months old ; seen May 19, 1879. She is the fourth child ; there have been no miscarriages or stillborn children. She is moderately rickety, judging by the beading of the ribs. The lower end of both tibiae is much swollen for two inches upwards ; tender also, so as to suggest periostitis : has been so for two months. There are no undoubted signs of inherited syphilis about the child ; and the father denies having suffered from chancres, but he owns to gonorrhœa.

June 10.—The tibiae as before ; the lower half of the right femur and both shoulders are much swollen. The skull is not natiform, but there are marked nodes on the os frontis at each

side of the fontanelle, just as described by Parrot. Deep cachexia; haemorrhage into the left eyelid, and into the gums where the teeth are being cut; a bruise over the sternum. The spleen is impalpable. There is no leucocytosis. The child's vaccination wounds did not heal well, and have left large scars, unlike those of ordinary vaccinia. Dr. Cree, of Highgate, who vaccinated the child, tells me that "the vaccine matter he used was from quite a healthy child, one of my own patients, whom I had vaccinated with the calf lymph from Belgium, which I occasionally use. So that no syphilis could have been introduced from that quarter."

July 24.—The child seems much the same, the swellings no less, and the cachexia as great. She died two or three months afterwards.

CASE IV.

S., a girl, 16 months old; seen May 19, 1879. The fifth child which was born alive; the first and fourth are dead; between the third and fourth came a miscarriage, also between the fourth and fifth. The child is much emaciated; the ribs show signs of considerable rickets. There are no signs of inherited syphilis; the skull has not the characters described by Parrot. The lower end of the right tibia was swollen and tender. The child was not seen again.

CASE V.

R., a boy, aged 9 months; seen on September 9, 1880, with Dr. Glover, of Highbury. He was brought up by hand. He had never been a healthy child; had bad eczema once, leaving a few scars. There were no reasons for suspecting inherited syphilis. About six weeks ago he had what was at first thought to be dropsy of the left leg. For the last few weeks the urine has been bloody; Dr. Glover deemed it to be chiefly a haematinuria. Great cachexia; no fever; liver and spleen impalpable. Urine slightly blood-tinged; a minute trace of albumen. No reason for suspecting stone; nothing amiss to be felt in abdomen. Lower half of left tibia much enlarged, probably very painful, especially at night. Lower end of right radius enlarged. Ribs much beaded. Has cut the two middle lower incisors. Heart and lungs natural. We ordered him to take cod-liver oil and iodide of potassium. On October 8 Dr. Glover wrote as follows:—"Our little patient is very much better, and presents a very different appearance from what you saw. He is quite lively, and sits up in the nurse's arms; bears handling about the ribs, or

about the leg. The anaemia and oedema are gone. The swelling of the leg too has almost disappeared, with the tenderness. The urine is no longer smoky. There seems every prospect of his doing well. The iodide did not seem to suit him or do him good, so I put him on Parrish's syrup, and it is under that that the improvement has set in."

ON
TUFNELL'S TREATMENT OF AORTIC
ANEURYSM.

BY

VINCENT HARRIS, M.D.

The suggestions as to the best method of producing consolidation of internal aneurysms, made by Mr. Tufnell some years ago, were prompted, as he tells us, by Nature's own cure of certain isolated cases of aneurysm in which consolidation of the aneurysmal sac had spontaneously occurred.¹ The publication of many cases of successful treatment of aortic aneurysm where these suggestions had been put into practice caused this treatment, at once simple and efficient, to be very generally adopted. I propose in the following paper to place on record certain cases of aneurysm treated in St. Bartholomew's Hospital during the years 1874-77 inclusive, according to Mr. Tufnell's plan, and to append the results of the treatment as far as I am able to give them. It may be as well in the first place, however, to consider what are the general indications in the treatment of aneurysm, and to inquire into the methods of meeting them proposed by Mr. Tufnell.

General object in the treatment of aneurysm.—In the treatment of all aneurysms, both external and internal, two chief objects are to be kept constantly in view—firstly, the prevention of an undue strain upon the aneurysmal walls, already weak and diseased; and secondly, the bringing of the blood and the circulation into such a condition that consolidation of the contents of the aneurysm may take place. In external aneurysm the surgeon is able to use several methods of producing these ends. He may diminish the flow of blood through the aneurysm either entirely

¹ *The Successful Treatment of Internal Aneurysm.*

by proximal ligature, or partially by regulated compression, or by distal ligature. In internal aneurysm we have a more difficult problem, as operation is out of the question; but the indications for treatment are still much the same, for in them, as for example in aortic aneurysm, the flow of blood must be diminished, and the blood pressure must for a time be lessened. Two chief methods conduce therefore to this end:—(1) Diminution of the action of the heart, and (2) diminution of the quantity of the blood. Valsalva, who was the first to suggest the treatment now modified by Tufnell, thought that bleeding would effectually produce the desired diminution in the quantity of blood, and so he recommended it in conjunction with starvation. In this method, however, according to Mr. Tufnell, the blood will be found, even if diminished in quantity, deficient in fibrin-forming factors, and so in a very unsuitable condition for clotting.

Tufnell's modification of Valsalva's treatment.—Disregarding, therefore, I suppose, as impracticable other ways of diminishing the blood pressure in the aorta, and shunning bleeding as likely to interfere seriously with the second object he had in view, that is to say, the formation of laminated fibrin, Mr. Tufnell directs most of his attention to diminishing the action of the heart, and at the same time to lessening the quantity of the blood, by means of the following method. He enjoins *absolute rest* in the recumbent position for a considerable period, such rest as shall lay upon the heart the least possible work, and so reduce to a minimum any antecedent increased cardiac stroke, which would have increased the tendency of the diseased vessel to distend. He says, “The recumbent position is the main point to be attended to. If this cannot be steadily maintained for a considerable length of time, all other treatment will fail. In the horizontal posture the circulation is tranquillised, and the heart's action becomes regular and slow.” He further enjoins *restricted diet*—the amount taken to be as nearly as possible eight ounces of fluids and ten of solids a day—as likely to diminish the absolute amount of blood, and also to make it rich in solids, and especially in fibrin-forming constituents; and, lastly, recommends certain necessary *remedial agents*, such as anodynes, aperients, &c., which are likely to aid in removing any possible disturbing elements. Such, then, is the plan which is now generally known by the name of “Tufnell's treatment.”

The use of Tufnell's treatment at St. Bartholomew's Hospital.—This treatment was first introduced into St. Bartholomew's Hospital about twelve years ago by Dr. Andrew, and was tried by the late Mr. Callender in a case the notes of which are subjoined.

It has since been used by most of the physicians, but chiefly, I think, by Dr. Andrew. It is to his kindness that I am indebted for permission to publish the notes of cases of aneurysm treated in his wards (1874-77), in which he took the greatest interest.

CASE I.—Aneurysm of the Ascending Aorta—Tufnell's Treatment—Relief—Death from Rupture of Aneurysm posteriorly—Aneurysm found full of Laminated Clot anteriorly.

Margaret R., æt. 42 (notes of the case taken by Mr. T. H. Sawtell, and kindly lent to me), a native of Monmouthshire, admitted into Sitwell Ward, under Mr. Callender, April 23, 1873. A widow without family; works at hat-binding, and is accustomed to press the hats against her chest during the process.

History of the complaint.—Six months ago she noticed a slight swelling, not painful at first, at the upper part of the sternum. She remembers that Dr. Poore described it as rather to the right of the middle line, on the second rib, one inch and a half from the clavicle. She was treated in Charing Cross Hospital for six weeks; the size of the tumour decreased considerably, but she was eventually discharged as incurable a week ago; and up to this time she has kept her bed for more than five months. To-day the tumour is about as large as a hen's egg, its long axis being almost horizontal. It occupies the uppermost part of the sternum, extending somewhat to the right of it. It pulsates obviously, and communicates a thrill upon palpation. The impulse is vigorous, markedly dilating, and synchronous with the cardiac systole. Now and then the tumour is the seat of a pricking sensation; and she is much disturbed by the application of the stethoscope to it. A harsh and prolonged bruit heard over the tumour, diastolic in time.

Symptoms.—She complains of hot pain over the spine, at times very severe, along the right side of the neck and down the right arm to the tips of the fingers; and of some dysphagia. But the most constant symptom is an irksome feeling, as of the presence of a hot nauseous liquid in her throat just above the episternal notch. Lastly, the pain is often more severe between the scapulae than elsewhere. Tongue clean, bowels regular, and other functions performed in a perfectly healthy manner. She sweats rather profusely, and is troubled with a short cough. Pulse 80. Small, easily compressible, left rather fuller than the right. Temp. 98°. Resp. 28.

Her general health has been, on the whole, good; seven months ago suffered an attack of bronchitis; has been an immoderate drinker.

Progress.—The patient was ordered to remain in bed, and was supplied with a good mattress and water-cushion ; and on May 6, as there had been a good deal of pain complained of and no alteration in the tumour, Mr. Callender ordered her the following diet, and strongly urged upon her the necessity of absolute rest :—For breakfast, bread and butter, 2 oz. ; milk or cocoa, $\frac{3}{4}$ jij. : for dinner, meat, 3 oz. ; potatoes or bread, 3 oz. ; water or light claret, $\frac{3}{4}$ iv. : for supper, bread and butter, 2 oz. ; milk or tea, $\frac{3}{4}$ jj. Total solid food, 10 oz. ; liquid, 8 oz.

May 12.—Tumour said to be smaller ; bruit more distinct.

During the next week her condition remained unaltered.

May 19.—Urine acid, full of lithates, containing no albumen. She has recovered from the hunger which annoyed her a week ago, and now complains only of dysphagia.

May 22.—The patient feels very uneasy ; she passed a bad night, being unable to sleep because of pain in the left arm and shoulder, with headache and troublesome cough. Occasional nausea. Bowels open. Ordered tr. belladonn. $\frac{3}{4}$ i. ; spiritus vini rect. $\frac{3}{4}$ ss. ; aquam ad $\frac{3}{4}$ i. ft. lotio, brachio sinistro applicanda.

From this date up to the end of June the patient was lying quietly in bed, and was supposed to be adhering to the above diet scale ; but she was restless and hysterical, and was suspected to have taken other food besides. The tumour varied, sometimes enlarging and again decreasing in size ; the skin appeared to be very thin over it, and the colour of the swelling was deep red ; bruit continued as before. As regards the symptoms, notwithstanding complaints of ill-defined aches and pains, she was evidently more comfortable, the severe pains having almost entirely left her.

On July 21 the note was : The tumour aches, but all the pains have disappeared ; some tenderness over the right brachial region, the right upper arm being rather swollen. Still complains of shortness of breath. The tumour is certainly considerably smaller, and its pulsation continues to decrease in vigour, and it has lost the heaving character which it had, although it still is notably expansive. The heart-sounds are heard less distinctly over the tumour. Functions normal. Appetite less capricious than it was ; eats all the diet except part of the meat.

July 28.—No pains ; she seems to have taken a strong distaste for her diet, and does not do what she can to assist treatment. She sleeps well without morphia injections. Pulse 84 ; regular, small, and feeble. Temp. 98° . Resp. 24. During the last month she has had fish or bacon instead of plain meat.

On August 1st she went out of her own accord, despite the

warnings given her as to the probable consequences. On August 3d she applied for readmission, which Mr. Callender refused to grant.

As regards her after history, the patient was, I am told, admitted into another metropolitan hospital, where she died suddenly a few months later from rupture of the aneurysm posteriorly. On autopsy, the aneurysm was found well filled anteriorly with laminated clot.

CASE II.—Aneurysm of the Aorta, probably involving the Innominate—Tufnell's Treatment—Cure.

(Notes kindly lent by Mr. F. W. Strugnell, house-physician at the time.)

T. B., wt. 36, sawdust seller, was admitted March 5th, 1874. Fairly nourished; dark hair and eyes. Five years ago quite well. Has since been subject to pains in the head lasting for some hours, which lately have been more frequent; during attack of pain has dyspnoea and feels "hot and cold;" pain extends down arm. Cough for two months. Was in India from '53 to '60 in 108th Foot. Sunstroke once, and English cholera twice.

Was admitted with great dyspnoea, noisy laryngeal breathing, which passed off after rest. Hoarse voice and cough two months. Temp. 99.4°. Pulse 93. Urine, no alb. Great tenderness over manubrium sterni; at episternal notch and a little to right of it is a soft, pulsating tumour. No marked dulness over manubrium. No difference in pulses at wrists; heart-sounds heard very clearly over pulsation; slight percussion produces cough: heart's apex in nipple line.

March 7th.—Ordered meat $\frac{3}{4}$ iv., bread $\frac{3}{4}$ ij., vegetables $\frac{3}{4}$ jj., butter $\frac{3}{4}$ i. = solids $\frac{3}{4}$ x.; wine $\frac{3}{4}$ jj., milk $\frac{3}{4}$ iv., water $\frac{3}{4}$ jj. = fluids $\frac{3}{4}$ viiij. Perfect rest in horizontal position in bed.

Slight return of paroxysm.

9th.—Temp. 98.2°. Pulse 66. No hunger, rather thirsty; upper part of sternum not so tender.

16th.—Since last note some dyspnoea at intervals. B. confined. Sleeps badly. On 14th very thirsty; ordered milk $\frac{3}{4}$ v. at once. Pil. hydrarg. gr. ij., scill. contrit. gr. i., pulv. fol. digit. gr. i., ext. glycyrrh. q. s. ft. pil. o. n. s.

17th. Tumour seems larger. On 19th tumour size of duck's egg in front of sternum; less dyspnoea, left pulse larger than right.

20th.—Complains much of thirst; ordered arrowroot $\frac{3}{4}$ iv. = fluids $\frac{3}{4}$ xiij.

March 28th.—Bowels very constipated; much relief from symp-

toms. *Ordered* pil. aloes barb. gr. ij., ext. nucis vom. gr. $\frac{1}{2}$, ext. hyoscy. gr. ij. o. n. s.

May 8th.—Since last note tumour has been gradually decreasing in size; the pulsation is much less. Pulse 56, very soft. Temp. 98.2°. Has been on the same low diet. Says he feels very comfortable. *Ordered* egg i.

11th.—Tumour now sunk below clavicles.

14th.—*Ordered* milk 3vijj. = fluids 3xvi.

18th.—*Ordered* half meat diet (D. D.), arrowroot oi., wine 3iv. Feels quite well. Very little pulsation in aneurysm. Pulse 56. Temp. 98°.

23d.—Allowed to sit up in bed. Temp. 101.1°. Pulse 84.

25th.—Temp. 99.4°.

June 2d.—Up and about the ward. *Ordered* full diet (D. C.), porter oi. No increase in pulsation.

9th.—Discharged.

Was readmitted May 5th, 1875, and was under treatment for pleurisy with effusion of the left side; remained in hospital for a month, and was then discharged. Presented himself for examination on October 22, 1875, and the following note was taken:—Prominence of right clavicle, which is uniformly thickened. Slight flattening in right infra-clavicular fossa. Slight distension of superficial veins on the upper part of the left side of chest; respiratory movements not free on left side. In the suprasternal notch, and rising perhaps a little above the level of the bone, is a firm mass where slight pulsation can be felt. The percussion, from one and a half inches from left border of sternum to two from right border, is impaired over upper part of chest to level of the second rib; nowhere quite dull except at the right border. No murmur, but loud second sound. Left lung is somewhat impaired in resonance posteriorly, but air enters freely to very base.

CASE III.—*Aneurysm of Ascending Aorta—Cure under Treatment.*

Robert B., aet. 56, labourer, admitted April 30, 1875.

Condition on examination.—Healthy-looking but thin; face rather pinched, and expression anxious. Right pupil smaller than left. Tongue clean, functions naturally performed. Pulse slow, 58; slightly dicrotous, equal on both sides.

Complains of cough and yellowish sputum. Cough takes away his breath and compels him to sit up, and increases the pain generally felt over his chest. Thirsty; appetite good. Bowels rather irregular; micturition free. Urine scanty and thick with lithates; sp. gr. 1028; acid; no albumen.

Thorax.—In front, on the right side, a swelling, most marked in the third space, with visible pulsation. Inferiorly a crescentic line of small superficial vessels from sixth right intercostal space to the apex-beat. Veins in neck distended, especially on the right side; the veins in the upper part of the chest and shoulder also slightly larger than natural; apex-beat in nipple line three inches below nipple. Percussion impaired throughout the front of the chest, but chiefly in second intercostal space. Slight double thrill, with shock of heart-sounds in second and third spaces, and great tenderness on percussion.

On auscultation on the right side, respiratory murmur unduly loud and coarse, expiration prolonged. Vocal resonance also increased. A loud systolic murmur all over the right side, but not more marked at the third space than elsewhere. At the apex of the heart the first sound is prolonged and blowing, murmurish, becoming more distinctly a true murmur towards the right of the sternum and fading towards the axilla.

History.—Somewhat meagre. About a year ago was in the London Hospital with heart disease, but asserts that his present illness began suddenly about ten days ago with cough, and that the thoracic tumour appeared after a severe coughing fit. Except rheumatism occasionally, has been a healthy man. Family history good.

Symptoms.—Cough, great shortness of breath, dysphagia and pain in the right side of the chest over the swelling.

Ordered.—To remain in bed and to lie absolutely at rest on a good water-bed; also the following diet:—Meat $\frac{3}{4}$ lb., potatoes $\frac{3}{4}$ lb., bread $\frac{3}{4}$ lb., butter $\frac{3}{4}$ lb., wine $\frac{3}{4}$ lb., water $\frac{3}{4}$ lb., milk $\frac{3}{4}$ lb.; and injectio morphiæ $\frac{1}{2}$ oz., omni nocte si opus sit.

Progress.—From May 1st, when he commenced the above treatment, there was little change. On that day it was thought that the tumour was less, and that the pulsation in it had diminished, but he complained of severe pain running into the right arm. He continued to adhere to the restricted diet very well, with considerable relief to symptoms. On June 28th, his diet was increased by $\frac{3}{4}$ lb. of tea; on July 5th, he was allowed to sit up for two hours daily; and on August 18th, he was discharged to be an out-patient, with all his symptoms alleviated and the physical signs diminished.

On several occasions he was admitted again for a few days to be examined, and on January 11th, 1876, the note states that although he complained of pains in his chest, cough, and shortness of breath, that there is no increase in the physical signs; and on February 1st he was again made an out-patient.

CASE IV.—Aneurysm of the Ascending Aorta—Tufnell's Treatment—Great Relief—Discharge—After-History unknown.

Thomas W., æt. 50, wool warehouseman, admitted March 2, 1876.

Condition on admission.—Well nourished and muscular; anxious-looking; conjunctivæ injected; right pupil larger than the left. Sleeps badly. Functions normal.

Thorax.—Visible pulsation in vessels of neck on both sides. Superficial veins are somewhat enlarged over the greater part of the surface of the chest, especially the upper part of sternum and below the clavicles on each side, most marked on the left. Slight fulness on left of sternum behind second rib, circular in shape, about two inches in diameter, with distinct pulsation over it. Marked dulness over area of fulness, which extends slightly up towards the top of the sternum. No episternal pulsation. Heart's apex in fifth space in vertical nipple line. No thrill or murmur throughout praecordia. Apex-beat very localised; second sound very loud at the base of the heart. Posteriorly there is bulging on the left side, about three inches from the middle line on a level with the eighth rib; this is tender and dull on percussion.

History.—Has been ill for a year, his illness dating from an accident, when a bale of wool fell upon his left shoulder. Has had pain, dyspnœa and dysphagia for some months. No cough. Feet sometimes swell. Has always been strong and healthy. Had syphilis thirty years ago.

Ordered on March 13, Tufnell's diet.

Progress.—Greatly relieved during the first month of treatment, during which period only the irritating condition of his urine troubled him. The pain in the left side was occasionally severe. On May 8, distinct and forcible abdominal pulsation was noticed, and a distinct systolic murmur, very harsh, was heard below xiphoid cartilage, not elsewhere. The burning pain in the left hypochondrium increasing in severity, was ordered a small blister, which relieved it. By June the patient was relieved, but the physical signs remained much as on admission. After-history of the case was not known.

CASE V.—Aneurysm of the Transverse Part of the Arch of the Aorta, with great Venous Obstruction—Tufnell's Diet—Improvement—Double Empyema—Death—Aneurysm found cured, but a second small sac just forming.

James S., æt. 28, single, bricklayer, admitted May 18, 1875.

Condition on admission.—Strong, muscular, in good condition. Face deep purplish-red and somewhat swollen; ears very blue; lips and tongue blue; tongue furred on dorsum, and moist. Neck enlarged from enlargement of superficial veins. Pupils equal. Sleeps fairly and functions healthy.

Thorax.—Well shaped; superficial veins, especially the small ones, full of blood. Movement free. No distinct tumour, but pulsation at the right border of upper bone of sternum. Apex-beat diffused, most marked in nipple line. Resonance much impaired as far as an inch outside right border of sternum; becomes quite dull at the right border, and dulness extends to about $\frac{1}{2}$ to 1 inch outside left border as far as third rib downwards. No tracheal breathing anywhere. Expiration prolonged on left side, and more air enters lung than on right. No cardiac murmur anywhere. Heart-sounds heard loudly at dull area, especially at second rib. Dulness at interscapular space behind on right side.

No dyspncea, or dysphagia, or pain, except in right shoulder on cough. Pulse 120, equal on both sides. Temp. 100°.

History of illness.—Was quite well up to six weeks ago and able to work at his occupation. First noticed that his neck and face seemed to swell, as if he had a violent cold, and that his face was bluer than it ought to be, the veins of neck being enlarged and swollen. Head swam if he stooped down. He worked off and on till May 12, when he gave it up, being afraid of an accident happening at his work. Can give no account of any over-exertion, blow, or strain, but says his work sometimes requires a considerable amount of "reaching" down, and the head is sometimes lower than the feet.

Had syphilis four years ago, with a rash and buboes.

Ordered the ordinary restricted diet, and the rest required by the treatment.

Progress.—May 20. Face less blue, pupils nearly equal, right the largest. No murmur at area of dulness, but second heart-sound very loud. Thrill and pulsation present. Pulse 100. Temp. 98°.

From this date onwards the patient continued to improve, but he complained very much at first of the restricted diet, and as his urine was full of lithates and irritating from its acidity, he was allowed on May 31 two ounces of water extra. By June 20 the pulsation and dulness were less, and he felt quite well, swelling of the face and neck having quite subsided; and on July 20, a month later, he was allowed to get up. At the beginning of August he suddenly developed a pleurisy with effusion on the right side, and the heart was much pushed over to the

opposite side, the seat of pulsation was also moved. Tufnell's treatment was entirely discontinued. On August 28, as the patient was very cyanotic, the physical signs remaining the same, he was tapped in the right chest and 141 oz of pus were withdrawn, and was again tapped on September 1, when a counter-opening was made and the side was allowed to discharge. On September 25 his health seemed to be good, and all the signs of the aneurysm had subsided, and he had been allowed to walk out into the square frequently; on that day, however, he became again cyanotic and breathed with difficulty. On examination, it was found that the left side contained fluid. Tapping was suggested, but considered useless by Mr. Savory; and the effusion increasing, he died on the afternoon of the same day at 4 P.M.

Autopsy.—It was found that there was a sacculated aneurysm of the transverse portion of the arch, about the size of an orange, regularly and beautifully filled with laminated clot; in addition, however, to this, there was a second small and commencing aneurysm of the arch, unfilled with clot, about the size of a walnut, further towards the left side. The left innominate vein was obliterated, but the vagi were apparently uninjured, as were also the recurrent laryngeal nerves. There was double pyothorax; and pyo-pneumo-thorax on the right side. The first aneurysm had apparently by its presence irritated the right pleura, and the second aneurysm the left pleura, producing inflammation.

CASE VI.—*Mediastinal Tumour, at first supposed to be malignant, but afterwards diagnosed as Aneurysm of Descending Aorta*
—Intense constant pain—Tufnell's Diet—No relief—Maniacal attack, apparently brought on by pain—Removal to asylum—Further history unknown.

H. M., æt. 38, a discharged soldier, was admitted into Mark Ward, September 30, 1875.

Condition on admission.—Dark complexion, deeply sunken eyes, anxious expression, pinched face, body thin and poorly nourished. Pupils equal. No marked pulsation of cervical vessels. Pulse 72, equal on both sides. No shortness of breath. Urine and functions natural.

Thorax.—Left side moves less than right; left shoulder rather dropped; veins on the front of chest enlarged. Vocal fremitus not impaired. Apex-beat of heart neither seen nor felt; supra-clavicular furrows deep; resonance impaired at left

apex. The second heart-sound intensified on the left side, loudest in the second interspace. Throughout the left side at the base, dulness, impaired vocal fremitus, and no breathing sounds.

History.—Was in the army for ten years, but was discharged in 1861, quite well. Twelve months afterwards had abscesses in the thighs, and then pains in arms and legs, which went to the head. Has had periodical headaches up to four months ago. About that time began to suffer from tightness across the chest, which has lately become worse. Now complains of a constant aching pain, with occasional sharp exacerbations, relieved by pressure, increased by movement, sometimes shooting down the left arm, which has, however, never been swollen. Has never had dysphagia, dyspnoea, or oedema. Denies having had syphilis. Had dysentery in India. No family history of tumour. A diagnosis of intra-thoracic tumour was made by Dr. Andrew, who inclined to the opinion that it was malignant. After a week in Hospital the patient was discharged at his own request.

Readmitted October 28th.—Since his discharge from the Hospital the pain in the left side has become more severe and burning in character, and has extended down the arm. He gets very little sleep. In the mammary region on the right side is a thrill, with cardiac impulse to be felt, and the second heart-sound is heard there rather loud and double; the resonance on percussion is impaired, as also the vocal fremitus. *Ordered injectio morphiae gr. $\frac{1}{6}$ p. r. n., pot. iodid. gr. x. ex. aq. menth. pip. ter die.*

Progress.—The patient was not at first put upon aneurysm diet, as it was uncertain whether the mediastinal tumour was aneurysmal or not, but symptoms developed which seemed to point to that diagnosis, and Dr. Andrew believed that the intense pain, so greatly increased on movement, was produced by an aneurysm of the descending aorta eroding the vertebrae; limited dulness, injected venules, with loud heart-sounds and pulsation (?) appearing more or less distinctly in course of time, apparently confirmed this diagnosis. The pain increasing, he was ordered Tufnell's diet, and morphia, as much as would relieve his pain, from time to time. The diet, however, was evidently not effectual in staying his pain. Nothing seemed to relieve this for any length of time, and after a few weeks' trial the diet was discontinued. The patient, about the middle of December, being more and more affected by the pain, became quite maniacal, and was removed to an asylum.

CASE VII.—Aneurysm of the Transverse Part of the Arch of the Aorta—Treatment on Tufnell's Plan for many months—Death in an attack of laryngeal spasm—Aneurysm found to be unfilled with clot.

Edward St., æt. 41, dock labourer, was admitted into Mark Ward, July 15th, 1875.

Condition on admission.—Medium size, well nourished and muscular; can lie in any position, rather prefers his left side. Capillaries of cheeks congested. Good-natured, intelligent expression. No noticeable difficulty in breathing when lying quietly, but sometimes on exertion is seen to be short-breathed; occasionally when he takes a deep inspiration, stridor is produced. Coughs now and then; cough has a distinctly metallic character, sputum frothy and dark streaked. Pupils equal. No pain or dysphagia. Sleeps fairly. Functions naturally performed. Pulse 66, of fuller volume on the left side. Temp. 98.2°; weight 10 st. 4 lbs.

Thorax.—Congested capillaries map out attachment of diaphragm. At upper part of sternum there is pulsation, and in episternal notch, markedly heaving swelling and a systolic thrill over it. Impaired resonance at upper part of sternum, and a systolic murmur with a loud second sound. Tracheal breathing along the sternum, and also between scapulae behind. A marked pulsation of the abdominal aorta. Vocal cords move with perfect freedom; no obstruction visible in the larynx, which is apparently normal.

History.—Appears to have had no illness (except a slight attack of gonorrhœa many years ago) previous to December 1874, when he got wet through, and caught a severe cold and cough with much thick phlegm. After this he felt a sharp pain in the right chest, passing round the right side to the back, with sensation of swelling inside that part of the chest. Breathing soon after became stridulous. Was admitted into Victoria Park Hospital in May 1875, and discharged at the end of June.

Ordered.—Absolute rest in the recumbent position, with Tufnell's diet.

Progress.—During the remainder of July he was very uncomfortable, and complained of dysphagia. He suffered too from severe coughing fits, which were, however, relieved on the subcutaneous injection of morphia. Voice was very brassy in character. Pulse and temperature below normal. The treatment was continued during August, with apparent relief of symptoms, and

during the beginning of September the improvement continued. On the 20th, however, he was suddenly seized with violent dyspnoea. At 7 A.M. he became perfectly blue, unconscious, and foamed at the mouth; his chest was poulticed, and a subcutaneous injection of morphia ($\frac{1}{2}$ gr.) was given, and in a short time he recovered breath. On examination of his chest, the pulsation was found to be more diffused. During the day he was kept well under the influence of morphia, and in the evening he was much better. Cough was very metallic. No change for the worse, except an attack of bronchitis of the left lung, until October 18th, when it was noticed that the tumour was larger; but on October 29th the note says: "For the last two days has been much troubled with cough, which comes on in paroxysms; the sputum has been profuse, frothy, white, and watery. The voice and cough are rather more laryngeal. No dulness or diminished vocal fremitus on the left side. Apex-beat two inches outside nipple. Pulse 72. Temp. 102.2°. Ordered potass. iodid. gr. x. ex. aq. menth. pip. $\frac{3}{4}$ l. bis die; tr. eucaly. globul. 3ss; ex. aq. menth. pip. o. n. s.; essence oss. meat $\frac{3}{4}$ iv., bread, $\frac{3}{4}$ vi. By November 8th he was so much better that a restricted diet was again tried, and with a grain of morphia a day the cough was kept under; the restricted diet was continued without producing any change in the physical signs. On December 12th was again taken with most violent and distressing dyspnoea, during which at each attempted inspiration he all but leaped from the bed. At 5.45 A.M. he seemed to be in extremis; he was pale, lips blue, flesh flaccid, and cold sweat all over skin. Within a short time he had about two grains of morphia injected subcutaneously with marked benefit. The sputum during the rest of the day was viscid and rusty. Recovering this attack, he remained in bed under restricted diet, taking two or three grains of morphia a day during the whole of January 1876; but at the beginning of the following month he had a series of attacks, like the two previously mentioned, each of which we expected would be his last. Physical signs remained much as before. During the remainder of the month and during March he remained much in the same state, taking three grains morphia daily. On March 4th he had ordinary diet, with $\frac{3}{4}$ j. brandy. On March 26th he had a violent spasm similar to his former attack, became quite blue, and died almost at once, more or less convulsed.

Autopsy (abridged account).—Showed a large aneurysm of the transverse part of the arch of the aorta involving the innominate. The posterior wall was formed by the trachea. No

attempt at clotting in the sac. The left recurrent laryngeal was spread out over the wall of the sac anteriorly.

CASE VIII.—Aneurysm of Descending Aorta eroding Bodies of the Vertebrae—Relief of Symptoms on Tufnell's Treatment—Death in an Anginal Attack—No Laminated Clot found in Aneurysm.

William M., æt. 34, seaman, admitted June 10, 1875.

Condition on examination.—Healthy-looking and sunburnt; florid; pupils equal. Pulse 60, regular; right larger than left. Temp. 96°. Urine, sp. gr. 1020; a trace of albumen and phosphates.

Thorax.—No pulsation, thrill or increase or diminution of vocal fremitus. Impaired resonance at upper part of chest, extending $1\frac{1}{2}$ inches to the right and 2 inches to left of upper bone of sternum. Systolic murmur to left, and very accentuated second heart-sound to the right of sternum, with stridulous or tracheal breathing and occasional rhonchus. Heart's apex-beat not to be seen or felt. No marked cardiac murmur.

History of illness.—Present illness came on gradually two months ago. First noticed dyspnoea, then cough, which is better now. Dysphagia has been a very prominent symptom throughout. Previous history good; had fever and ague in Russia, also dropsy of the legs and abdomen. Family history good.

Symptoms.—Cough (laryngeal and spasmodic) with yellowish-white frothy sputum, streaked with black. Occasional attacks of shortness of breath after any very great exertion. No pain in chest lately; had some three weeks ago. No oedema of arms, face, or neck. Very great difficulty in swallowing solids.

Ordered.—Absolute rest in the usual position. Meat 3*iv.*, potatoes 3*iv.*, bread 3*vij.*, butter 3*i.*, wine 3*vij.*, water 3*iv.*, milk 3*vij.*

Progress.—As regards all the disagreeable and dangerous symptoms, this patient did well from the very first, there being no pain or dyspnoea, and the dysphagia quickly going. On July 24th, said that he felt nothing the matter with him; but the physical signs remained very much the same, i.e., ill defined, but distinct. On August 16th, his diet was changed to the ordinary half-diet (D.D.) of the Hospital, and he was allowed up for twenty minutes. On the 23d he was allowed up one hour, and on 25th was up two hours; on the 27th, was discharged, much relieved, at his own request. On October 14th, he was readmitted with a return of his symptoms, but with no increase of physical signs. On October 18th, was suddenly seized, whilst exerting himself, with a convulsive fainting fit, which in all lasted about

an hour and a half, during which he became cyanotic and cold ; the eyes appeared glazed and fixed. Respiration stertorous, and unconsciousness complete. Stated afterwards that he had had several similar fits whilst out of the Hospital ; one lasted three hours.

November 8.—Breath rather shorter. Sometimes loses his voice entirely. Has occasional choking in his throat. Pulse 72, the left the larger. Functions natural ; is up and goes about a good deal. Does not think that tinct. gelsemini semperv. 3ss. has relieved his cough.

November 9.—Was taken suddenly with a fit similar to one described above about 7 A.M., and died at 4 P.M., remaining unconscious the whole interval, and breathing very stertorously.

Post-mortem examination.—Showed a large sacculated aneurysm of the descending arch, eroding the vertebræ, and implicating the left vagus and left recurrent laryngeal nerves. No clot or laminated fibrin within thorax.

**CASE IX.—Aneurysm of Transverse Part of the Arch
of the Aorta.**

L. W. A., æt. 51, a Customs' waterman, admitted into Mark Ward, January 7th, 1876.

Condition on admission.—A fairly nourished man, with sallow complexion, and blackish hair turning grey. Veins of neck (jugulars) fuller on left than right side. Thyroid enlarged and forming a fulness of the neck at the top of the sternum. No œdema. Pupils equal. Voice hoarse, has been so for fourteen months. Temp. 98°.

Chest.—Resonant, except at the upper bone of the sternum, where it is impaired on percussion, and dulness at the left border of sternum, and to a lesser extent on the right. No marked impulse or thrill. Heart-sounds over praecordia natural ; over dull area very loud, with a prolonged second sound. No tumour or distinct pulsation. Functions natural. Urine normal.

History.—Suddenly became hoarse fourteen months ago, and since then has suffered from dyspncea, especially on movement ; slight occasional dropsy. Slight but distinct dysphagia ; pain across chest to the back, especially on the left side, but not running down the arm. Has lost flesh slightly.

Ordered.—On January 10th, absolute rest, and restricted diet as directed by Tufnell.

Progress.—The patient suffered from considerable trouble with his urine at first, it being very acid and depositing copious lithates on standing, and from want of sleep ; and for a time he

had an extra allowance of water. Voice became less hoarse, but the loud second sound at the base of the heart on both sides of the sternum, and the dulness, did not alter. During the two months following he continued to improve, although the physical signs remained much the same. On March 24th he was allowed extra diet, and on April 3d full diet and pudding, and on the 9th he was allowed to get up. On examination on the 17th, the physical signs were noted :—"Veins of left side still enlarged; impulse beneath manubrium. Percussion dull beneath and to the left of manubrium. Heart a little displaced outwards to the left. Heart-sounds intensified over manubrium. Breathing almost tracheal. Posteriorly, impaired resonance on left side at the base of spine of scapula. Heart-sounds unduly loud at that point. Respiration feebler and harsher here." All disagreeable symptoms had disappeared. He was discharged, and readmitted March 17, 1877, with bronchitis, physical signs remaining as before.

CASE X.—Aneurysm of the Transverse Part of the Arch of the Aorta.

E. D., aged 35, labourer, admitted March 15, 1876.

Condition on admission.—Breathes with more or less laryngeal stridor. Sits up in bed, cannot lie down. Respiration 28. Pulse 98, full and regular, jerky, but equal in both wrists. Pupils rather large and equal.

Thorax.—Apex-beat in normal situation; veins enlarged over upper part of chest; pulsation in vessels at root of neck. Sense of impulse at episternal notch, as also at both sides of the upper part of that bone and over praecordia. Impaired resonance at the upper part of sternum, and on both sides of that bone. Systolic murmur at apex, almost a diastolic murmur over the situation of the aortic valves. Loud breathing, somewhat bronchial at same side. General rhonchus, with crepitant at the bases of lungs. Complains of severe cough, with white and glairy sputum. No dysphagia, pain, or oedema. Breath very short.

History.—Was quite well, so he says, at the beginning of last summer (1875), when he took to house-painting, and had colic twice. Since then has become short-winded. Two months ago spat blood after coughing. Appetite good. Bowels regularly opened. Urine natural.

Ordered.—Milk diet (D. L.); arrowroot; brandy 3ijj.; hst. æth. co. p. r. n.; hst. quass. c. ferro, c. tr. camph. co. 3ss. ter.; cat. sinapis inter scapulas; hst. a. a. c. scillâ 6^m.

Progress.—March 20. Had severe epistaxis from four P.M. yes-

terday until eleven A.M. to-day, when all other remedies having failed, plugging the posterior nares was done. The plug was removed on the 23d. No attempt was made to put him upon Tufnell's diet until April 14, when, as all the symptoms had become much increased, and the dyspnoea being great, he was ordered the restricted diet, and pil. morph. acetatis gr. $\frac{1}{2}$, ext. hyoscyam gr. iij. bis die.

In this case the patient was relieved by the rest and restricted diet, but the after history of the case is unknown.

CASE XI.—Aneurysm of the Ascending Aorta—Tufnell's Treatment no relief—Discharged at own request.

Patrick O'R., æt. 45, labourer, admitted into Mark Ward, February 3, 1877.

History.—Nine months ago first noticed shortness of breath. Was in Guy's Hospital for six weeks with this complaint. Eight weeks ago had a severe cough. Ten years ago a strain in the back in India. Has suffered much from dysphagia for a month, and pricking, throbbing pains running down both arms on exertion. A temperate man. No history of syphilis.

Thorax.—At the third right costal cartilage is a slight pulsating prominence, with injected venules over it. A systolic murmur heard loudest at this point, with accentuated second sound. Impaired percussion, both over and to the right and left of this swelling. Air does not enter the right lung well. At the right base slight ægophonic voice. Tracheal breathing down the sternum. Extremities and abdomen natural. Functions natural.

Ordered.—February 5, Tufnell's diet.

Progress.—The symptoms, cough, dysphagia, and pain did not improve notwithstanding morphia injection of $\frac{1}{2}$ gr. p. r. n. Urine irritating, acid, and thick. On February 21 said he could not stand diet any longer, and on 23d was discharged at his own request. Further history of the case unknown.

CASE XII.—Aneurysm of the Arch of the Aorta, involving the Innominate Carotid and Subclavian Arteries—Tufnell's Diet, relief—Sudden death in an attack of Dyspnoea—Partial lamination of Sac.

W. D., æt. 54, married, ship-loader; admitted into Mark Ward, December 28, 1876; under the care of Dr. Andrew (the notes are taken from those of the late Dr. Neville Hart, the house physician).

History.—Patient says that he was quite well two years ago; he then had constant pricking pains at the pit of the stomach, which were worse during the day. These pains gradually extended under both arms and between shoulders, and he was unable to lie on either side without pain. He became an out-patient at Guy's Hospital, and about a year ago was recommended to Victoria Park Hospital. He was an out-patient there three months, continuing his work as a ship-loader. Three months ago he left off work, as he found the pain increasing, and that a choking sensation came on when he had a heavy weight on his back. He was an in-patient at Victoria Park Hospital for six weeks; was advised to remain longer, but left three weeks ago to continue his employment, but soon found his inability to do so. Has had dysphagia for the last three months. A year ago a bag of grain fell on his left shoulder and knocked him down; he had pain from it for a month, but he did not notice any increase of the old pains after it.

Complains now of constant pain between the shoulders and in the neck, also wheezing on lying down.

Dysphagia has increased during the last three months; has difficulty in swallowing solids. The food "hangs" as it goes down. Has had no haemoptysis or throbbing pain. Syphilis thirty years ago. No children, although married twenty years. A temperate man.

Condition.—Bronzed; pupils equal; clean tongue. Pulsation at episternal notch. Venous injection on chest, in a line extending from sternal end of left clavicle to right nipple, and from this point in a line to the left of epigastrium. Apex-beat of heart seen three inches below and half an inch outside left nipple line. Slight pulsation seen round sternal end of left clavicle, which is more prominent than on the right side. Slight dulness on percussion for two inches around and below this point. Pulsation here synchronous with apex-beat. On auscultation, muffled systolic sound heard loudest at sternal end of left clavicle; the point of next greatest intensity about one inch above normal position of aortic valves. Sibilant râles and prolonged expiration-murmur at left apex.

Behind.—Slight tenderness down spine. Slight sibilant sounds over both lungs. Vocal resonance increased at both bases. No dulness.

Ordered.—December 31, Tufnell's diet.

Progress.—The progress of the patient in the record of the next three weeks was noted as favourable, except that the cough was troublesome, and that he suffered from insomnia. Morphia injected subcutaneously ($\frac{1}{2}$ gr.) gave him rest, however, for a time.

The urine was scanty, of high specific gravity, and contained a copious deposit of urates on standing. On January 26th, the cough was very troublesome, and the sputum blood-streaked, the voice nasal. At 10.30 P.M. was suddenly taken with dyspnoea, from which attack, notwithstanding prompt and active treatment, he never rallied, and died at about two A.M. on the 27th.

Autopsy (Extract from P.M. book).—On taking away the sternum, the first piece on its inner surface found to be rough, and adherent to a large aneurysmal sac. The aorta immediately above the semilunar valves is dilated into a sac about the size of an apple; this dilated aorta communicates, through an opening which admits four fingers, with a large sac about the size of a cocoa-nut. The walls of this sac show a small amount of fibrin deposited. The origins of the innominate left carotid and subclavian arteries are dilated; the aorta beyond is dilated, and atheromatous in its length.

CASE XIII.—Aneurysm of the Arch of the Aorta—Rupture into the Left Bronchus—Tufnell's Treatment—Death.¹

J. B., a fairly healthy-looking man, aged 47, a gas stoker, came to the out-patients' department of the Victoria Park Hospital on December 30, 1875, complaining of difficulty of breathing and pain in the right side. On examination it was found that he had an aneurysm of the aorta, and was admitted into the Hospital.

Note on admission.—Medium height, muscular, and in fair condition. Capillaries of face congested, expression anxious, pupils equal, and act to light. Lies best on the left side, he says, but no apparent dyspnoea in any position when lying quietly. Voice not altered; no dysphagia or oedema; functions natural.

Thorax.—The attachment of the diaphragm is mapped out by a line of congested capillaries. A tumour, pulsating synchronously with the cardiac systole, occupies the centre of the first bone of the sternum, extending more to the right than to the left. The extent of the swelling is about $2\frac{1}{2}$ inches from above downwards, and $2\frac{1}{2}$ from side to side. Dulness extends one inch to the left and three-quarters of an inch to the right of the tumour; no distinct cardiac murmur over tumour, but the second sound is everywhere intensified. Apex-beat in sixth interspace, about two inches below nipple in nipple line. No marked pulmonary signs.

History.—Has been healthy previous to the development of present trouble, and has never had rheumatic or other fever or syphilis, nor does he present any sign of the latter complaint.

¹ Published in extenso, "Medical Times and Gazette," July 31, 1875.

States that five weeks ago he noticed that his chest was very sore, and that he had pain in the right side on exertion. In about ten days the swelling appeared. Tried to work after a rest at home, but difficulty of breathing arising and the swelling increasing, he left off work and came to the Hospital. Does not recollect any sudden strain. Family history good.

Ordered.—Tr. digitalis m. v. ex aq. menth. pip. ter die; icebag to chest over the swelling. This treatment seeming rather to increase than diminish the dyspncea, it was discontinued in part, and the patient was allowed simply to rest quietly in bed, with the icebag to the chest a few hours daily.

On January 16, with the patient's consent, his diet was diminished to about 1 pint of fluids and 12 oz. of solids a day; and on the 22d the fluid was further diminished to 17 oz., and he was ordered absolute rest in bed. On March 2, the diet was again decreased, as the tumour did not decrease in size (fluids, 14 oz.; solids, 8 oz.) Tumour varied considerably, but was certainly smaller and harder, as a rule; once a severe fit of sneezing caused marked increase. On March 30 the note was:—Patient has been doing well; all distressing symptoms have departed, and the tumour is if anything smaller and harder; dulness as before. Temp. 97°; pulse, 50.56. Low diet, not quite but nearly up to Tufnell's standard, was continued until May 1, when he was put upon full diet, as it was thought that the result of the former treatment had not been satisfactory. On May 11, after ten days of full diet, the note is:—"He complains of pain in region of right nipple, extending round to the back; worst at the angle of the scapula. The breathing during the last few days has become stridulous, but there has been no dysphagia, though there seems to be some difficulty (though no pain) in swallowing liquids." On June 10, the patient was attacked with pleuro-pneumonia (?), but having somewhat improved, went out of the Hospital on the 22d at his own request.

The patient came to St. Bartholomew's on July 3, about 1 P.M., and was able to walk up one flight of stairs into the ward. Appeared wasted and much exhausted, had a violent cough, and much frothy muco-purulent sputum. Was at once sent to bed, and put upon Tufnell's diet. No examination of the chest was made.

July 4.—Passed an unquiet night because of the violence of his cough. Tongue fairly clean. Pulse 112. At 6.45 P.M. he suddenly vomited about a pint of blood, and died in a few minutes.

Autopsy.—A large aneurysm, size of a large cocoa-nut, occupied the middle part of the aortic arch, involving the innominate;

the fore part filled with pale laminated fibrin. A communication of the size of a shilling leads from the aneurysm into the left bronchus. Bronchial tubes and upper parts of lungs filled with blood. Heart small; left ventricle not at all hypertrophied; walls flabby; aorta below aneurysm atheromatous; lower lobes of lungs solid, breaking down (grey hepatisation).

Analysis of Cases.—In the thirteen cases recorded, in six of which death resulted after a longer or shorter interval, only one was entirely unrelieved during the treatment; cure resulted in three, and more or less consolidation of the sac in several more. Strangely enough, the three cases of cure were of aneurysms of the ascending arch of the aorta, with large or small pulsating external tumours. In two cases (one of the transverse arch, and the other of the descending aorta) in which death occurred in a paroxysm of dyspnoea, the vagus or recurrent laryngeal being implicated, there was no trace of laminated clot in the aneurysms, although one case was treated for five months with absolute rest and restricted diet. One patient was entirely unrelieved from treatment. In this case the descending arch was affected, with the result of eroding the vertebræ, and setting up mania, probably from the pain.

Sex.—It will be noticed that all the cases are males except one. It must not be thought, however, that no females were treated in Dr. Andrew's wards in the way described; they have been purposely omitted. About two or three cases of females were treated during the years mentioned, with fair results. The one female case the notes of which have been given was undoubtedly relieved, but the patient was both unreasonable and violent, and really did not enjoy that absolute rest so essential to the proper carrying out of the system. She died, I am told, in a violent fit of passion, caused by a quarrel with another patient.

Age.—Does not seem to exercise much effect in diminishing or increasing the chance of recovery. Two cases of cure were of men over fifty, and the third was a man about thirty-six.

Position of the aneurysm.—Contrary to Mr. Tufnell's experience, the cases which did the best among those above recorded all were of large aneurysms with pulsating external tumours. The three cases in which the descending arch was affected were unfavourable, and in two of them there was no trace whatever of laminated clot found after death in the aneurysmal sac.

Signs of aneurysm.—In nearly all the cases were generally well marked, but a murmur over the aneurysm was seldom heard, while an accentuated second sound was nearly constant.

	Age.	Sex.	Occupation.	Signs of Aneurysm.	External Tumour.	Position.	Complications.	Duration under Tuinell's Treatment.	Result.	Mode of Death.	Autopsy.
Marg.R.	42	F.	Domestic.	Pain, dyspnoea, dysphagia, marked physical signs. Systolic murmur over tumour.	Yes; large and pulsating.	Ascending and transverse arch.	None especially worth noting.	10 or 11 weeks.	Relief to symptoms; death.	Rupture posteriorly.	Good laminated clot found in the anterior part of the aneurysmal sac, which was large.
T. B.	36	M.	Sawdust seller.	Cough, noisy laryngeal breathing, hoarseness, dyspnoea, and pain. No murmur.	Yes; large and pulsating.	Ascending ; affecting innominate.	Nothing.	2 months.	Cure.		
R. B.	56	M.	Labourer.	Cough, dyspnoea, dysphagia, and pain in right side of chest.	Yes; small and pulsating.	Ascending arch.	None.	10 weeks.	Cure.		
T. W.	50	M.	Warehouseman.	Pain, dyspnoea, dysphagia; no cough. No murmur over tumour.	Yes; small and pulsating.	Ascending arch.	None.	3 months.	Cure; after-history unknown.		
J. S.	28	M.	Labourer.	Accentuated second sound. Swelling of face and neck; no dyspnoea, dysphagia, or cough; slight pain. Pulse in episternal notch; no cardiac murmur; dullness behind upper bone of sternum.	None.	Transverse arch.		10 weeks.	Death.	From double pleurisy.	
H. M.	38	M.	Discharged soldier.	Intense pain; no dyspnoea or dysphagia. Dullness behind; no cardiac murmur.	None.	Descending arch.	Mania.			No relief; removed from Hospital to native asylum. Death.	
E. S.	41	M.	Dock Labourer.	Stridulous breathing and voice; occasional dyspnoea, dysphagia, and cough. Pulse in episternal notch.	None, except in episternal notch.	Transverse arch.			Three attacks of violent dyspnoea; epileptic angina.	Off and on for 5 months.	In a violent attack of dyspnoea.
											Aneurysm unfilled with laminated clot; regurg and recurrent laryngeal implicated.

W. M.	34	M.	Seaman.	Marked dysphagia, laryngeal and a spasmodic cough. Systolic murmur and accentuated second sound to left and right of sternum respectively.	None.	Descending aorta.	Two attacks of 10 weeks; severe dyspnoea; opisthotismus; epigastric pain; dulness of upper part of sternum. No cardiac murmur; accentuated second sound over dull area.	Transverse and descending.	Rolls at first; In a violent attack.	No sign whatever of laminated clot in the aneurysm, which had eroded the body of a vertebra.
L. W. A.	51	M.	Customs' officer.	Hoarseness; dyspnoea, occasional swelling of face, dysphagia. Pain; dulness of upper part of sternum. No cardiac murmur; accentuated second sound over dull area.	None.	Transverse and descending.	Difficult and painful micturition.		Good; relief of symptoms.	
E. D.	35	M.	Labourer.	Dyspnoea and cough; no dysphagia or oedema. Dulness of upper part of sternum and diastolic murmur.	Pulseation and tumour in episternal notch.	Transverse.	Epistaxis.	Unknown; went out of Hospital at own request.		
P. O'R.	48	M.	Labourer.	Dyspnoea, dysphagia, and cough; pain; systolic murmur and accentuated second sound.	Yes; small and pulsating at third right costal cartilage.	Ascending.	? Pleurisy.	3 weeks.		
W. D.	54	M.	Ship-loader.	Pain and dysphagia. No distinct murmur; accentuated first sound.	Yes; small; projecting forward sternal end of right clavicle; pulsating.	Transverse, involving origin of innominate carotid & subclavian arteries.	Severe bronchitis.	26 days.	Relief of symptoms; death.	In a violent paroxysm of dyspnoea.
J. B.	47	M.	Gas stoker.	Pain; dysphagia, dyspnoea. No murmur; accentuated second sound.	Yes; large and pulsating.	Transverse.	Pleuro-pneumonia.	3 months or more.	Relief of symptoms; death.	A large aneurysm, the anterior part lined with laminated fibrin.
									Rupture into left bronchus.	

In addition to the above cases, three others were treated in the same way, with absolute rest and restricted diet. One died about three days after admission from rupture, and the other two were so insufficiently recorded as to be useless for the purposes of the table, the results of treatment being unknown.

Symptoms.—Dyspncea and dysphagia usually present, as well as cough and some pain. Oedema of face and neck in two cases. Pulses seldom markedly different in the two radials. Pupils seldom unequal. Stridor observed in four cases, and hoarseness in the same number. No haemoptysis; no herpes; no localised sweating.

Complications.—Pleurisy or pneumonia occurred in three cases.

Mode of death.—Rupture of the aneurysm in two cases, once into the left bronchus, and the other time posteriorly; in both cases with the anterior part of the aneurysm well on towards cure. Three times death in a violent paroxysm of dyspncea, two cases presenting the condition which I have in a former paper¹ ventured to call, after Rousseau, neuralgia epileptica, were due to implication of the vagus or recurrent laryngeal. Death resulted once from double pleurisy (pyo-thorax and pyo-pneumo-thorax).

Results.—Wishing more to record cases in which Tufnell's treatment has been employed than to write a paper based upon so few cases on a subject which has been so often and so ably discussed previously, I shall content myself with a few remarks only.

The question of importance which has to be answered is whether the treatment of aneurysm by rest and restricted diet did good in these cases, first of all in the relief of symptoms, and secondly in the cure of the affection? As regards the first of these queries, my tabulated list shows that relief followed in nearly every case, and in only one were there absolutely no grounds for thinking that some of the distressing effects of the aneurysm were removed. This case (No. VI.) was complicated with mania, possibly excited by the pain caused by the erosion of the vertebrae by the tumour. Then as regards the cure of the aneurysm, in three cases the sac solidified, and two out of the three men were seen at long periods after, and had been without a recurrence of aneurysmal symptoms. Death resulted in six cases, but in only two from rupture of the aneurysm. In four of these cases the aneurysm was found partly or entirely filled with laminated fibrin. In one case the aneurysm was quite cured, and the patient died from pleurisy.

The table above given shows, however, that only three cases were actually cured. I confess that this result is disappointing, as, having watched from day to day the progress of many of the cases, and having noted with pleasure the relief of all distressing symptoms under the method of treatment, I had expected more. In several cases, I cannot help thinking, the adherence to the prescribed absolute rest and to the restricted diet was not strict;

• On Angina Pectoris, St. Bartholomew Hospital Reports, 1879.

of this, however, I am unable to find positive evidence. The speedy relief of symptoms would no doubt be a sufficient reason to some patients for discontinuing the absolute obedience to the disagreeable rules of conduct necessary for the further good, that is to say, the cure of the affection. As there have been a large number of aneurysms treated in Dr. Andrew's wards in a similar manner to the above-recorded ones, I have asked several of my successors in the office of House-physician their opinion of the result of Tufnell's treatment, and strangely enough their opinions agree with my own experience, that although there was almost certain relief of symptoms, the cures were rather rare. I have also inquired of the Sister of Mark Ward, a nurse of undoubted worth and exceedingly trustworthy in observation, who has probably seen as many of these cases treated on Tufnell's plan as any one, and she tells me that, taking them altogether, the cases which have done well and have been discharged cured have been few. She, however, agrees with the statement that nearly every case has been relieved whilst in the ward.

NOTE BY DR. ANDREW.

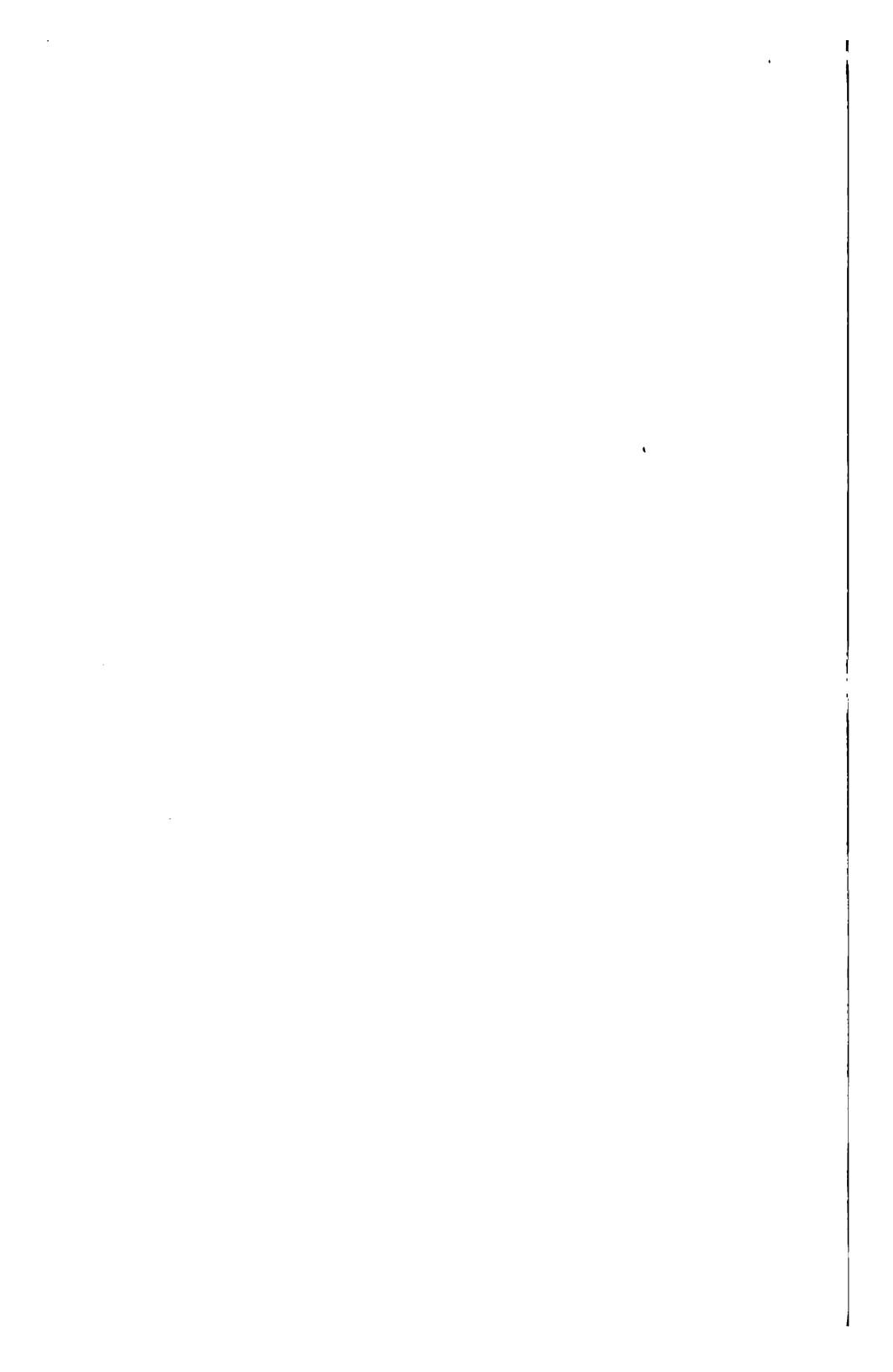
I gladly avail myself of the opportunity given me of adding a short note to my friend Dr. Harris's paper. Fully admitting with him that Tufnell's treatment of internal aneurysms leaves much to be desired, still a method which is successful in three cases out of thirteen, or in even 23 per cent., and which is attended by little or no danger to the patient, is at least not inferior to any other in present use. If those cases only in which the treatment has been satisfactorily carried out be included in statistics, the percentage of cures will be much higher. That it gives, I believe, better results in private than in hospital practice; for hospital patients are more frequently found wanting in the strong resolve and intelligence necessary for success. But although the instances of complete consolidation must always be few, those in which relief from distress and an increase in the strength of the walls of the sac are obtained are very numerous. The observance of the following rules is of the utmost importance:—

Place the patient at once upon the minimum diet, and forbid even the slightest movement which can be avoided.

The room in which he lies must be as quiet and secluded as possible.

No treatment by drugs is to be attempted at the same time.

Listen to no complaints of thirst so long as the pulse and temperature are normal, or nearly so, and the whole allowance of solid food is consumed.



ON
THE DIAGNOSTIC SYMPTOMS OF TABES
DORSALIS, WITH CASES.

BY

J. A. ORMEROD, M.B.

If reasons are to be given for offering illustrations of a disease already well known, I must urge that, of all structural nervous diseases, this one offers the largest variety of symptoms for study; and that within the last few years, while on the one hand novel and striking symptoms, such as joint and bone disease, have been described in connection with it, so again others have been added, insignificant apparently and requiring to be looked for, but in reality of great importance, because so frequent in their occurrence as to be of great diagnostic value, and that, too, in the early stages of the disease, when diagnosis is difficult, and treatment (as one would imagine) more likely to be successful.

Duchenne, in speaking of the premonitory stage, characterises it by the following symptoms:—Transient paralysis of the ocular muscles; impairment and loss of vision due to atrophy of the optic nerve; pains. To his description of the pains, one of the most constant and most early symptoms, little has been added, nor is much more to be said of the ocular paralysis; the optic atrophy has been further studied, so that rules have been laid down for distinguishing “tabetic atrophy” and the “tabetic papilla.”¹ But optic atrophy is by no means always present; squint, though frequently occurring, may be a matter of history only; so that of Duchenne’s early symptoms, the pains are those upon which we have most frequently to rely. But patients who are not the subjects of tabes may represent themselves (especially if prompted) as suffering from lightning pains; hence the

¹ Charcot, *Leçons sur les Maladies du Système Nerveux*, ii. 45 fol.

extreme utility of certain other symptoms which are a matter of direct observation. I refer of course to two: the first known variously as Westphal's sign, the absence of the knee phenomenon, the absence of the patellar tendon reflex, which, thanks to Westphal, Erb, Buzzard, and others, is so well known that I need not stop to describe it;¹ the second, a peculiar state of the pupil. The small pupils of tabes had been noticed by the earliest writers; Romberg² even speaks of "a contraction with loss of motion of one or both eyes;" but Argyll-Robertson³ first drew attention to the fact that this small pupil, while it contracts normally during accommodation, does not contract under the stimulus of light. This is often called the Argyll-Robertson pupil. There are, however, varieties; the pupil is not always small, and it may contract neither to light nor during accommodation. We have, therefore, two symptoms,⁴ capable of direct observation and independent of each other, neither of which occurs in the great majority at least of healthy people, and which are found (and that less frequently) in but one other disease, viz., general paralysis of the insane.

I have arranged the following cases in three series, according to the degree of development of the incoördination, showing that the symptoms mentioned occur not only in the well-developed disease, but also in the pre-ataxic stage. I have employed the term "patellar tendon reflex," as being generally understood; and by its absence mean to imply the presence also of the negative condition (without which its diagnostic value is lost), viz., that the nutrition and voluntary power of the quadriceps femoris is not notably impaired.⁵ A phenomenon pointed out by Dr. Buzzard may here be noticed, that the muscle in these cases often responds to direct percussion even more readily than in health.

The state of the pupils I have described in each case where it was noted.

Series I.—Cases in which there was well-marked incoördina-

¹ For a *résumé* of various investigations as to the presence of this symptom in health and disease, see Grasset, *Maladies du Système Nerveux*, 2d edition, p. 314.

² Sydenham Soc. Trans., vol. ii. p. 301.

³ Edinburgh Medical Journal, vols. xiv. and xv., where atrophy of the optic nerve and colour-blindness are also noted.

⁴ I should mention, however, Dr. Buzzard's theory, that both phenomena consist in abolition of reflex actions, an explanation which is adopted by Erb ("Spinal Myosis," New York Archives of Medicine, 1880).

⁵ There may be in tabetic cases considerable emaciation, and even a muscular paresis: should this be sufficient to cause embarrassment, the reaction of the muscle to the faradic current will show whether the motor cells and nerve trunks be at fault or no.

tion in the legs, causing difficulty in walking and inability to stand with the eyes shut.

Series II.—Cases in which such incoördination was slightly marked.

Series III.—Cases in which there was no incoördination.

SERIES I.—*Well-marked Incoördination.*

CASE I.

Robert W., 52. Casualty, November 20, 1880. Comes on account of weakness in the legs.

History.—Ten years ago he lost the use of the right arm and leg and his speech; was laid up six weeks. Four months after that lost use of left arm and leg; laid up the same time. Three years ago lost power in both legs; recovered in eight months enough to work; but now for several months the legs have been growing weaker. Since the second attack has had occasional double vision, diurnal incontinence of urine, and loss of sexual desire. For the last three months nocturnal erections, &c.

Pains.—Sharp shooting pains at back of head before second attack, and after it similar pains in feet and legs. Lately these have abated, and he has "pleasant sensations" instead. Gradually increasing deafness during the last five years; the left ear much the worst.

Present condition.—Walks unsteadily, flinging out his legs; cannot stand with eyes shut. Patellar tendon reflex absent. Skin reflexes; plantar slight or absent; cremasteric absent; abdominal present. Some anaesthesia of feet and analgesia of calves of legs. Sense of touch impaired, and some incoördination of movement, in the hands. Pupils rather small; contract slowly and sluggishly to light, readily during accommodation. Tuning-fork, on middle line of forehead heard best with the left (*i.e.*, the deafest) ear.

Attended for a month, when he was admitted under Dr. Gee.

CASE II.

John P., a man of middle age or past, came to St. Bartholomew's, April 22, 1880, in a cab, complaining of his left knee-joint. The ends of the bones were thickened and the joint quite disorganised; the leg could be swung about "like a flail." It was quite painless. Duration of the joint affection, eighteen months; but previously he had had "rheumatics," *i.e.*, pains of a

"gripping" character in the legs. Pupils small ; patellar tendon reflex absent. Only after being questioned did he mention "some kind of paralysis." He would not be admitted. I saw him again, however, under the care of Dr. Buzzard, who has given a fuller account of his case.¹

CASE III.

Henry S., 47. Queen Square, August 3, 1881.

History.—Tightness round abdomen for eighteen months, numbness in legs for six, difficulty in walking (especially when he starts) for three months. In bed does not know where his legs are. For a few months has had occasional shooting pains in the right leg and groin. For the last four or five months attacks of vomiting, lasting two or three days, recurring about once a fortnight.

Present condition.—Walks unsteadily, even with a stick. Cannot stand with eyes shut. Sense of touch absent in toes of both feet and in middle of left foot. Patellar tendon reflex absent. Skin reflexes ; plantar doubtful ; cremasteric absent on right side, present on left. Much thickening of the skin on the balls of the little toes ; on the right side a small ulcer there. No joint affection except a thickening of the bone and joint of the left great-toe. Cataract in the right eye ; pupils very small ; the left oval horizontally, and a little larger than the right ; they contract very little during accommodation, and not at all to light. A numbness and swollen feeling in the left upper lip lately.

August 31.—Recurrence of vomiting. Throbbing sensation of rectum, rectal discharge (?), and diarrhoea after food. These improved in a week.

October 19.—Noticed ten days ago, on rising in the morning, a large painless swelling of the right knee-joint. His right foot slipped a few nights before, and he thinks he must thus have strained it. The joint is now full of fluid, bulging on either side of the patella, and for some inches above it. The swelling does not extend into the muscles of the thigh or leg ; the outline of the distended synovial membrane is clearly mapped out. No redness, heat, or tenderness. No crepititation or grating felt on manipulation, but he says himself that it "cracks."

The next week the swelling had subsided a little, but the joint was still an inch more in circumference than the other.

The patient is still under observation.

¹ British Medical Journal, March 5, 1881.

CASE IV.

John H., 40. Queen Square, October 19, 1880.

Acute stabbing pains in the legs for three or four years; in the loins for the last three months. Numbness of feet with inability to feel the ground for two or three months. Some numbness of fingers. Difficulty of walking eighteen months; worse the last two months. Cannot stand in the dark. Sense of touch somewhat impaired in the feet. Patellar tendon reflex absent. Pupils, size not noted; the right contracts very little to light, the left not at all; both contract during accommodation.

Attended for six weeks without change in his condition.

CASE V.

Mary Ann B., 43. Queen Square, August 18, 1880.

Comes for a numbness and loss of power in the left arm and leg. Brings an out-patient letter from Moorfields with entries to the following effect:—That six years ago she attended there for partial palsy of the left third nerve, affecting especially the levator palpebrae and superior rectus; this got well under iodide. A month ago she attended again for double vision, ascribed this time to paresis of the left superior oblique, and for the affection of the arm and leg noted above. No optic neuritis. Mentions no pains, but on being asked says she has had rheumatism in the legs on and off for ten years. Sense of touch imperfect in left hand. Cannot stand with eyes shut. Patellar tendon reflex absent. Pupils small; do not contract under light; contract readily during accommodation. The diplopia, so far as I can make out, occurs on looking downwards and to the left. It is crossed; the pseudo image is on a lower level than the true image, and its upper extremity slanting towards it. The left eye follows the finger incompletely in an outward direction.

Attended for two months without change.

CASE VI.

Mary Ann F., 46. Queen Square, August 15, 1880.

Complains of "a numbness all over her." This began seven years ago, with double vision and pains in the legs, which were of a "cramping" character and left a numb feeling.

For seven years unable to walk, but can move all her limbs.

Three weeks ago a pain came in the lower jaw on the left side, since which the left eyelid has drooped and the double vision recurred.

Present condition.—Cannot stand without support. Sense of touch much impaired in left side of face. In the legs the sense of pain is delayed in transmission. Patellar tendon reflex absent. Evident ptosis of left eye; squint hardly to be made out. Pupils small, contracting during accommodation, but not to light.

CASE VII.

Margaret C., 54. Great Northern Hospital, March 11, 1880.

Complains of vomiting, which she describes as follows:—

When she goes to bed at night she vomits, first a thick phlegm, afterwards her food. This happens at night only, almost every night, and may last a week. She has been subject to it since the menopause, *i.e.*, for fourteen years.

Says she has had three attacks of rheumatic fever, the first twenty-five years ago. During this twenty-five years she has also been subject to neuralgic pains, which come and go, and vary with the weather.

Pains in the left flank and aching in the loins for twelve months.

Difficulty in walking for three or four years, with numbness of the left leg. Deafness, getting worse the last six months. Says, on being asked, that she has often seen double.

Present condition.—Cannot stand with eyes shut. Throws left leg outwards as she walks. Sense of touch impaired in left foot. Patellar tendon reflex absent. Pupils small; no note as to contractility.

No note of physical examination of heart, but there was no obvious symptom of disease.

CASE VIII.

Mary B., 42. Casualty, June 14, 1880.

Comes for cramps in the legs. These are worst in the night and in wet weather. These cramps, a difficulty of walking, and a numbness in the hands, are said to have come on suddenly after getting wet twelve months ago. Sometimes she feels as if walking on wool.

Present condition.—Walks carefully with short steps; some-

times throws her feet outwards and brings them down suddenly. Is unsteady when eyes are shut. No incoördination in movement of hands. Patellar tendon reflex absent. Pupils moderate size; contract during accommodation, but not to light.

CASE IX.

Eli C., 42. Great Northern Hospital, April 22, 1880.

Complains of aching pains in the legs and cramps at night. Duration, six months; but he appears to have had something of the sort since youth. Impairment of vision six months. Getting deaf, on right side especially. Drinks to excess; suffers from diarrhoea.

Present condition.—Walks uncertainly with legs straddled; is unsteady when feet are put together, much more so when eyes are shut. Sense of touch normal in feet, but he says they feel numb.

Patellar tendon reflex absent.

Pupils (no note of size; it was, I believe, moderate), contracting during accommodation, but not to light. Vision: can just make out 16 Jäger. Field of vision of right eye seems normal, of left much limited on the outer side. No note of colour-vision. Optic discs of an uniform pale greyish colour; edges sharply defined; no cupping; retinal arteries rather small. Attended for two months, during which his general condition, pains, and power of walking improved considerably under abstinence from alcohol and other simple treatment.

CASE X.

Edmund M., 48. Queen Square, August 31, 1880.

Complains of loss of power in the legs and cramps at night. His complaint began with a tingling in the fingers three or four years ago; then a tingling in the feet; then numbness and loss of feeling in them.

Present condition.—Can only walk with sticks; cannot stand with eyes shut. Sense of touch much impaired in legs. Plantar reflex absent. Patellar tendon reflex absent. Pupils, no note of size; the right contracts very little either to light or during accommodation.

October 5.—Incontinence of urine. Complains of a bad corn on the outer aspect of each little toe.

November 30.—The corn on the right foot shows a superficial ulcer the size of threepence.

January 11.—The difficulty in walking increases steadily.

46 *Diagnostic Symptoms of Tabes Dorsalis, with Cases.*

March 29.—The ulcer looks like a perforating ulcer.

April 28.—On the balls of both little toes there is a deep ulceration, with very profuse discharge.

May 24.—Has some rectal trouble; he feels stuffed up, as he calls it. Formerly had constipation, now apparently some incontinence of faeces.

June 28.—The ulcers, which had improved last month, are now worse again.

The occurrence of perforating ulcer in the course of locomotor ataxy is noticed by Grasset,¹ and was made the subject of a communication to the International Medical Congress, 1881, by Ball and Thibierge. Messrs. Savory and Butlin,² studying a series of cases apparently unconnected with locomotor ataxy, come to the conclusion that perforating ulcer depends upon disease of *sensory and nutrient* nerve fibres. Now, in the present case, the sense of touch was much impaired in the feet, and the ordinary lesion of locomotor ataxy affects chiefly the sensory strands of the cord.

In all these ten cases the patellar tendon reflex was absent and the state of the pupil abnormal. In the majority the sense of touch was impaired or altered in the feet; which harmonises with the remark of Erb,³ that "the symptom of tottering when the eyes are closed is found chiefly or exclusively in cases of marked disturbance of sensibility in the lower limbs." This does not prove the dependence of incoordination on a disturbance of conscious sensibility; for it is possible that simultaneously with the sense of touch some other function of the cord may be involved.

The earliest symptoms obvious to the patient were, in eight cases, pains of some sort; in one, tingling of the fingers; in one, hemiplegia. Double vision was present or had occurred in four cases, atrophy of the optic nerve in one.

The duration of the disease, when the patient was first seen, counting from the first symptom that he had himself noticed, varied from twenty-five years to twelve months.

SERIES II.—*Slight Incoordination.*

CASE XI.

Ziba B., 47. Queen Square, March 1, 1881.

For sixteen years has had paroxysmal pains in the arms and legs. Seven years ago he was under Mr. Hutchinson for squint and loss of vision in the left eye.

¹ *Maladies du Système Nerveux*, p. 717, quoting from Duplay and Morat.

² *Medico. Chirurg. Trans.*, vol. lxii, p. 383.

³ *Ziemssen's Handbook*, vol. xiii., English.

Present condition.—Gait irregular and slightly ataxic. Becomes dizzy when his eyes are closed. Patellar tendon reflex absent. Internal squint of right eye. Pupils very small, contracting a little during accommodation, not at all to light. They do not dilate when a painful faradic current is applied to the neck.

April 26.—Difficulty in holding urine. Pain in right foot.

July 26.—A large ulcer encircles the root of the left great-toe. Edges thickened, granulations sluggish, no discharge. A smaller circular one on the dorsum, near the metatarso-phalangeal joint. He says it came suddenly like an abscess about a month ago. His wife says he had a similar ulcer on the back ten years ago. He can feel when that foot is touched, but localises sensations wrongly.

August.—Ulcer healing under mercurial ointment. Incoordination of movements of hand.

I could not be certain whether, as in the last case, this ulceration was to be connected with the central nervous disease, or no.

CASE XII.

Elizabeth W., 32. Casualty, October 14, 1880.

Complains of "weakness of the legs," which, together with a numbness, has affected her for six months, and "weakness of the chest," by which she means attacks of vomiting. These attacks last for twelve hours at a time, and are preceded by pain over the eyes. She has occasional incontinence of urine. Further, she says that twelve years ago she had rheumatic fever; and ever since she has been subject to rheumatism, generally in the feet and legs. The parish doctor called it rheumatic fever; she was in bed two months with it, had pain and feverishness, but remembers no redness or swelling of the joints.

Present condition.—Is unsteady with her eyes shut. Says she cannot walk in the dark. Patellar tendon reflex absent. Pupils moderate size, contracting during accommodation, though not very readily, but not at all to light. Deaf with the left ear. Says she sometimes has a discharge from it. Tuning-fork on middle line of cranium or teeth: December 2, indecisive; December 14, best heard with right (the sound) ear; January 13, best heard with right ear, even when left is stopped.

She attended five months. She had four or five attacks of vomiting in that time, but the duration of them diminished. I met her walking in the snow and frost one day without any unsteadiness.

CASE XIII.

William Edward W., 54. Queen Square, September 7, 1880.
History.—Rheumatic pains in the left leg of eight months' duration. Some difficulty in walking, six months. Anæsthesia of right side of face, six months. Ptosis and external squint of left eye, one month. Occasional incontinence of urine. Thinks the sense of touch is impaired also in the left buttock. Chronic deafness of the left ear. Some deafness of the right also since the affection of the face began.

Present condition.—He is rather unsteady when his eyes are shut. Patellar tendon reflex absent. Some drooping of the left eyelid: the left eye squints outward slightly when at rest; no double vision. Pupils, the right smaller than the left; contraction during accommodation doubtful; to light, none. As regards the palsy of the right fifth nerve, all its divisions are affected. There is anæsthesia of the right side of the face and forehead, of the conjunctival, buccal, and (partially) of the nasal mucous membrane on the right side. When he bites, the left temporal and masseter muscle can be felt to contract strongly; the right not at all. He cannot protrude the lower jaw or move it to the left side. No facial palsy. No affection of the ocular muscles on the right side.

He became an in-patient under Dr. Ramskill, and again an out-patient in January.

Notes in April and June state that the pupils act during accommodation, but not to light. They do not dilate when a painful faradic current is applied to the neck. Tuning-fork on middle line of cranium heard best with the right (the least deaf) ear.

CASE XIV.

John S., 52. Casualty, July 24, 1880.

Complains of a continual pain, "like knives," in either side of the abdomen during the last three or four months. Says that yesterday he had some difficulty in swallowing.

The pupils attracted attention at once by their small size. They contracted during accommodation, but not under light.

Patellar tendon reflex absent.

Walks fairly, but is rather unsteady when he turns. Does not fall, but is unsteady when his eyes are shut.

I saw him for about a month. The difficulty of swallowing, at first mentioned casually by him, became very troublesome to him. There was no affection of the voice.

Budin, Jean, and Fereol mention the occurrence of laryngeal and pharyngeal troubles in tabes (*Progrés Medical*, 1877).

In these four cases of partially developed ataxia, the patellar tendon reflex was absent and the pupil abnormal always.

The earliest symptom obvious to the patient was in all cases pain, which in one case was said to have originated in rheumatic fever. Palsy of ocular muscles was present in two cases. Duration of the disease, reckoned as before, sixteen years, twelve years, eight months, four months.

SERIES III.—*No Incoördination.*

CASE XV.

Samuel L., 38. Casualty, April 30, 1881.

Complains of a "coldness" and pain in his left leg; pain like a knife, in paroxysms lasting half an hour; the leg also feels heavy, "like a lump of iron." Duration, two months. Never had similar pains before; never had rheumatic pains. Complete blindness of both eyes, perception of light only remaining. This has come on gradually during the last twelve months. No pain in the head preceded it. During the last two months also has had pain round the lower chest, as if tightly tied, only at night, but almost every night. After it he vomits "clear stuff."

Present condition.—Gait not ataxic; patellar tendon reflex absent; plantar reflexes present.

Pupils, moderate size, not acting to light. Slight drooping of both upper lids, and external squint when the eyes are at rest; but they move freely in any direction.

Optic discs.—Colour a dead greyish white; edges sharp and well defined; some cupping; retinal vessels rather small.

The next case was under the care of Dr. Church in John Ward, May 1877.

CASE XVI.

John W., 36, itinerant concertina-player.

He was brought to the Surgery, having fallen apparently in a fainting fit about half an hour previously. When first I saw him he was almost insensible; could not tell his name. Tongue clean. An ether draught caused him to vomit a quantity of yellow sour-smelling fluid. He was quite blind. In two hours he could walk with assistance. I thought at the time he moved

his feet oddly, but after being in the ward a few days he could walk quite naturally. Notes in a former Ward-book, taken by Dr. Bridges, stated the man was suffering from locomotor ataxy ; he was, therefore, readmitted. He vomited only once after admission. The sense of touch was impaired in the face above the mouth, in the feet and legs, hands and forearms. There was slight drooping of both eyelids, and double external squint ; also double optic atrophy. No deafness. His account was that eight years ago some timber fell on the back of his head ; persistent sickness followed. In a few days his sight began to fail, and was quite gone in four or five months. After some months, a "heavy" pain in the back came on, gradually spreading over the trunk. Numbness in the extremities and face for four or five years. When the sickness comes on, his legs "give at the knees," and he cannot walk. On the present occasion he had had the pain and vomiting for a fortnight, but feeling better, he went out, when suddenly the vomiting came on, he lost his senses and fell.

Though I did not examine the patellar tendon reflex, I have little doubt that this case may be properly classed with those that form the subject of this paper. The history of the blow on the head, followed as it was by affections of the cranial nerves, such as optic atrophy, vomiting, anaesthesia of the face, seemed to point to a traumatic origin. But unfortunately for this (otherwise most interesting) piece of etiology, I find the following note :—

May 13.—Kept awake all night by "rheumatic pains;" there is, however, no redness, swelling, or tenderness of joints or limbs. Subject to these pains eleven years, i.e., for three years before the accident referred to.

CASE XVII.

Charles R., 36. Casualty, April 9, 1881.

Complains of vomiting and of a shooting pain round the chest. Subject to the vomiting two years ; it first came on while he was working a crane ; he felt dizzy and fell. It used to recur regularly every month. The shooting pains round the chest for the last seven or eight months. Never any rheumatism or pain elsewhere. Never any squint, urinary, or genital trouble. Stands with eyes shut ; gait doubtful. Pupils rather small, inactive to light and during accommodation. Patellar tendon reflex absent. Skin reflexes ; plantar present ; cremasteric present ; abdominal excessive. Skin of upper abdomen seems hypersensitive ; that of the chest, anaesthetic on the left, and to

a less degree on the right side. He attended for a month, and frequently complained of vomiting. He was then admitted to Luke Ward. No vomiting was there witnessed, and he was thought to exaggerate his pains. I was subsequently able to verify the complete absence of the patellar tendon reflex and the inactivity of the pupils. A needle could be put through the skin of the praecordial region without eliciting any sign of pain. His gait was quite natural.

CASE XVIII.

George L., 51. Casualty, January 1, 1880.

Twitching and pricking pain in legs fourteen months, with a general feeling of numbness. Impairment of vision twelve months; deafness twelve months. Occasional incontinence of urine. All the symptoms have come on gradually.

Present condition.—Stands with eyes shut; gait natural. Patellar tendon reflex absent. No note of pupils. Vision much impaired in left eye, especially in the centre of the field of vision. Double murmur over aorta and along sternum. No albuminuria.

This patient was also admitted to Luke Ward under Dr. Gee.

CASE XIX.

Charles C., 42. Casualty, February 9, 1880.

Comes for pains in the leg and groins: described as severe, of short duration, often catching him when he walks. His knees give way. The pains vary with the weather. He has been subject to them sixteen years, since an attack of "rheumatic fever." Gait normal; stands with eyes shut. Pupils attracting attention at once by their small size; they contract during accommodation, but not to light. Patellar tendon reflex present; not well marked, varying on different days. No sign of valvular disease. Attended for two months; nothing relieved his pains the least. Subsequently I saw him under Dr. Buzzard's care at Queen Square, who, I believe, has exhibited the case to the Clinical Society.

CASE XX.

Jane D., 50, Great Northern Hospital, April 15, 1880.

Pain in the legs, "as if some one were gnawing the bones." Coming and going suddenly, but lasting perhaps ten minutes. It comes in bouts, which last for one or two days. It varies with the weather. When it catches her in the street she has to stop and hold on to something. She has had it thirty years, ever since an

attack of "rheumatic fever," while suckling her first child. Gait natural. Stands steadily with eyes shut. Patellar tendon reflex absent. Pupils, no note of size ; the left not quite regular ; they act, but only sluggishly to light ; readily during accommodation. No note of the physical examination of her heart, but there was no obvious symptom of heart disease. Attended five weeks without much change.

CASE XXI.

Ellen H., 48, Queen Square, June 21, 1881.

Attends for epileptic fits of two years' duration. On her second visit she complained of pain in the legs and abdomen, "as if some one were drawing the bones out." Each pain short, but the attacks may last an hour. Interval varies ; sometimes she is a month without them. Duration a year. Gait normal. Stands with eyes shut. Patellar tendon reflex absent. Pupils rather small, acting readily during accommodation, but not to light. She had rheumatic fever eighteen years ago, but does not connect this in any way with her present pains. Heart impulse heaving ; double murmur, the systolic loudest at the apex, the diastolic loud both over apex and along sternum.

Most of these seven patients applied for the relief of pain, some for vomiting. The initial symptom was in one case amaurosis (atrophy of optic nerve), in one case vomiting, in the rest pain, which twice was said to have begun with rheumatic fever. No mention was made of squint (that in Cases XV. and XVI. may be put down to the blindness). The epileptic fits had best, perhaps, be taken as a coincidence. Duration, reckoned as before, from a maximum of thirty years to a minimum of about a year. The patellar tendon reflex was present in one case, the pupils abnormal in all ; in Case XX., perhaps, not remarkably so.

Cases XX. and XIX. may be classed with the abortive cases of Charcot : the pains had existed for thirty and sixteen years without the appearance of incoördination. I do not know that this implies that the later stages of the disease might not develop, did circumstances favour.

The cases as a whole confirm the generally received idea that the absence of the patellar tendon reflex and the abnormal state of the pupil are to be observed in almost every case of tabes, even in those where other symptoms of the disease are but little developed.

The exact date of the appearance of these symptoms is not yet determined. Taking the patients' statements as correct (and in these two instances they seem to have had a definite starting-

point), Case XIX. shows the tendon reflex existing sixteen years after the pains had set in ; Case XX. the pupil still acting (though very sluggishly) to light thirty years after the first pains. Both of these must have been very chronic cases, in which the stages of the disease would be much drawn out. Westphal,¹ relying on a recent post-mortem, maintains that absence of the knee phenomenon is absolutely diagnostic of disease of the posterior root zones of the lumbar cord. In that case, if the pains precede its disappearance, either they are premonitory symptoms only, or the anatomical lesion begins at some other spot. Dr. Jackson,² again, records a case where one pupil was inactive to light but active during accommodation, and where the knee phenomenon was absent, and yet the patient had no pains or other symptoms of tabes. Examination of these matters will doubtless soon be common, and time will then show whether patients who are at fault in these respects develop further symptoms or no. With respect to the pupils, Vincent³ thinks they vary in different stages of the disease, being at first large, acting during accommodation, but not to light; next small, acting as before; lastly, generally large or moderate in size, acting neither to light nor during accommodation. Admitting the variations in size and mode of action, I have not been able to correlate them with different stages of the disease, as the following table shows :—

In Series I., where there was well-developed incoördination, out of seven cases where the size was noted it was small in six, moderate in one. Out of eight cases where the contractility was noted it was absent or feeble to light, but normal during accommodation in six ; absent or feeble under both conditions in two.

In Series II., where incoördination was partly developed, out of four cases the size was small in three, moderate in one ; the contractility absent to light, normal during accommodation in two ; feeble under both conditions in one ; apparently variable in one.

In Series III., where there was no incoördination, out of four cases ; size small in three, moderate in one (advanced optic atrophy). Out of four cases contractility absent or feeble to light, normal during accommodation in three ; absent under both conditions in one.

In two cases examined I found that strong faradisation of the skin of the neck caused no dilatation of the pupil.

Passing now to other considerations, it may be remarked that the disease is more common than is generally supposed, since out

¹ Berlin Klinische Wochenschrift, 1881, Nos. 1 and 2.

² Transactions of Ophthalmological Society, vol. i. p. 151.

³ Thèse de Paris, as quoted by Grasset.

of the twenty-two cases (collected within less than two years) more than a half came from general hospitals; next, that it can be no such great rarity among women, as seven appear on the list.

As regards the account which patients give of themselves, it has been often noticed that the pains are put down to rheumatism, so that, with hospital patients at any rate, the shortest way often is to ask whether they have had "rheumatics in the legs." In four, however, of the present cases the patients maintained that the pains, distinguished by them as something peculiar, originated in an attack of "rheumatic fever" (Nos. 7, 12, 19, 20). Assuming this to be a misnomer (and in none of the four was there any symptom of heart-disease, nor any murmur in the two whose hearts were examined), it must have meant, I presume, a sudden, severe, and prolonged attack of pain. Even so, there still remains this much interest, that the very cases where this history of an acute beginning was given were those in which the course of the disease was very slow, the duration when I first saw them being respectively 25, 12, 16, and 30 years, and the two latter being still in the pre-ataxic stage. A fifth patient (No. 21), who gave a history of rheumatic fever, but did not connect it with her pains, had well-marked valvular disease. There was one other case of valvular disease (aortic, No. 18), without history of rheumatism or syphilis, and without albuminuria.

Vomiting was tolerably frequent, occurring in six cases, being often an early and an urgent symptom, so that the patient would apply solely or chiefly for the relief of this. There was usually some element of periodicity about it that marked its nervous origin. As regards its connection with arthropathy,¹ there are but two cases of joint-disease (Nos. 2 and 3); in one of these there was vomiting, in the other not.

Deafness is a symptom of some interest. It occurred in six cases (Nos. 1, 7, 9, 12, 18, 20). It may have been accidental, but there is some evidence the other way. Thus, in most cases, its development coincided more or less with the development of other symptoms. Further, in two cases out of three examined with the tuning-fork, it was heard, when applied to the middle line of the forehead, best with the least deaf ear. There appeared to be no special connection between the deafness and the vomiting, for out of six cases of each there were only two coincidences; neither did the deaf people complain especially of vertigo.² It may be accounted for in two ways: on the one hand, by sclerosis of the

¹ Buzzard, *Trans. Pathological Society*, vol. xxxi. p. 206.

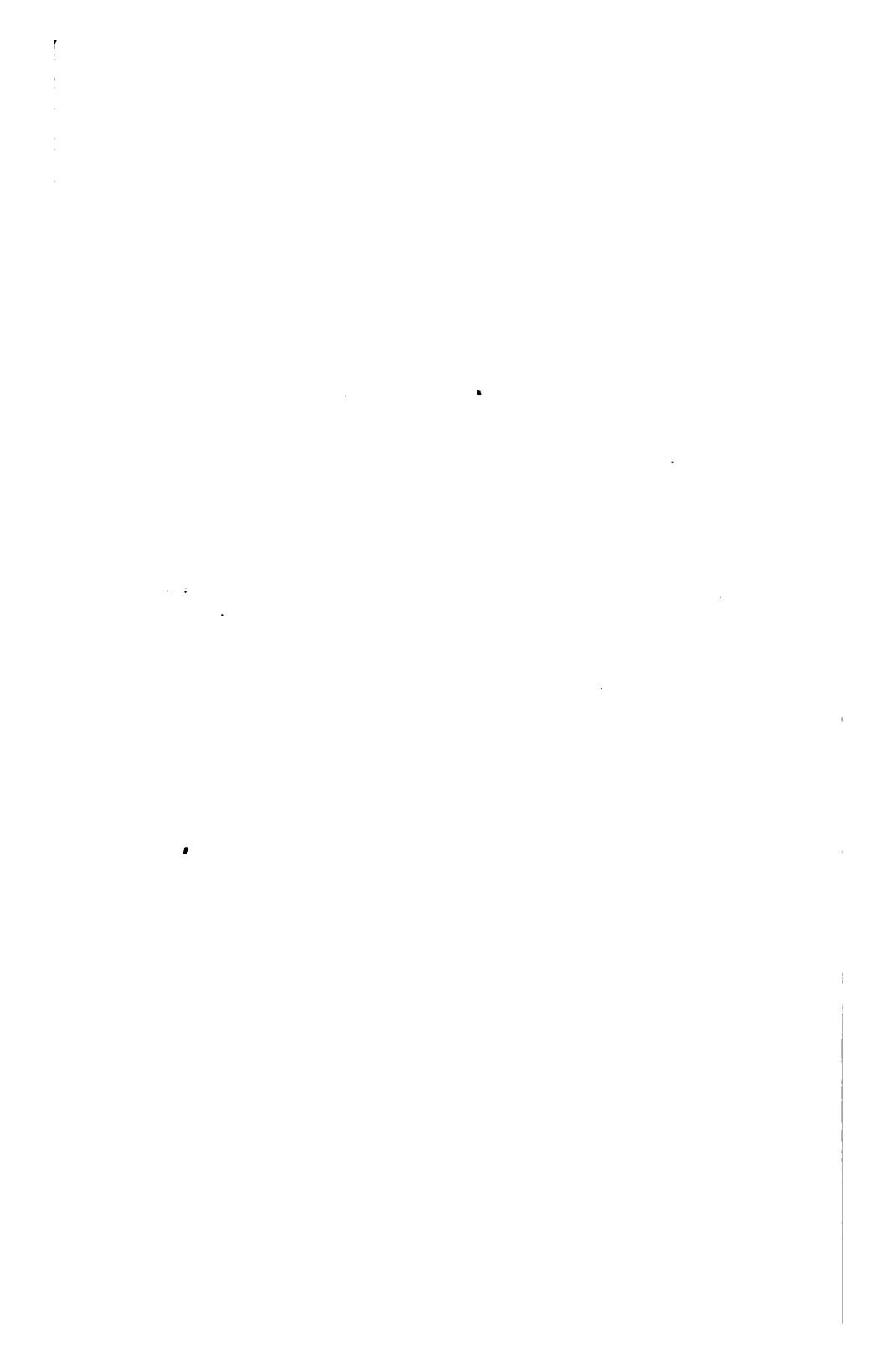
² Pierret, *Revue Mensuelle de Medicine et de Chirurgie*, 1877, says that tabes dorsalis may begin with symptoms of Mèniere's disease.

auditory nerve analogous to that of the optic. Strumpell¹ gives a case of this seen post-mortem. Erb² details a case ascribed to this cause, wherein, with a partially deaf ear, high and low tones were imperfectly heard. May not this be the counterpart of the colour-blindness occurring in incipient optic atrophy? In two of the present cases the deafness coincided with commencing optic atrophy (Nos. 9, 18). Or, on the other hand, it may be explained as Pierret suggests.³ This author gives two cases of anaesthesia in the district of the fifth nerve (in the one preceded by lightning pains there), accompanied by noises in the head, vertigo, and deafness, and ascribes these phenomena to sclerosis in those tracts of the medulla which correspond to the posterior columns of the cord, affecting therefore the adjacent *sensory* nuclei of the fifth and of the auditory. Case XIII., in which deafness of the right ear was said to have come on simultaneously with anaesthesia of the right half of the face, is so far in accordance with this view, but there had been neither pains in the face nor symptoms of irritation of the auditory nerve. Moreover, the motor as well as the sensory divisions of the fifth were paralysed.

¹ Archiv für Psychiatrie, &c., Bd. xi. 2.

² Ziemssen's Handbook, xiii. 582, English.

³ Op. cit.



ANATOMICAL VARIATIONS:

AN ACCOUNT OF SOME OF
THE MORE INTERESTING ABNORMALITIES
THAT HAVE BEEN MET WITH IN THE
DISSECTING-ROOMS DURING THE SESSION 1880-1881;
WITH REMARKS.

BY
W. J. WALSHAM.

This paper is not intended to be a complete report of all the abnormalities that have occurred in the dissecting-rooms during the past session. Those only have been selected that were rare or seemed to be of special interest. The greater number of them were very carefully dissected and drawn by Mr. S. T. Pruen, to whom I am also greatly indebted for an accurate and minute description of their relations and attachments. I regret that the scope and nature of the Hospital Reports do not admit of the publication of his interesting drawings. The remaining abnormalities are described from my own notes and rough sketches, also taken at the time from the dissected parts.

A Slip from the Left Sterno-Thyroid Muscle crossing the Middle Line of the Neck to join the Right—The Right Sterno-Thyroid and Thryo-Hyoid abnormal—A Muscular Slip extending from the Pericardium to the Carotid Sheath.

These abnormalities occurred in the same subject. The sterno-thyroid on the left side arose in the normal manner from the upper and back part of the first bone of the sternum and from the sterno-clavicular articulation, and by a distinct and

separate portion from the sternal end of the clavicle—a cellular interval existing between the sternal and clavicular portions. The clavicular portion measured one-eighth of an inch in width and two inches in length, and joined the rest of the muscle opposite the lower border of the cricoid cartilage. The external fibres of that part of the muscle that arose from the sternoclavicular articulation, instead of continuing upwards with the muscle, ran slightly outwards, forming a distinct slip, which, after crossing under the clavicular slip just described, terminated on the carotid sheath. It measured about two inches in length. On its inner side the sterno-thyroid was joined by a muscular slip which had crossed the middle line of the neck, and arose as part of the left sterno-thyroid from the back and upper part of the first bone of the sternum. The sterno-thyroid thus formed was inserted as follows:—The innermost fibres by a distinct fleshy slip one-sixteenth of an inch wide into the lower extremity of the oblique line on the ala of the thyroid cartilage; the middle fibres by a slip one-sixteenth of an inch wide into the greater cornu of the hyoid bone, just external to the insertion of the omo-hyoid; the external fibres constituting the greater portion of the muscle, by a tendon into the superior extremity of the oblique line on the ala of the thyroid cartilage.

In addition to the above abnormalities the following, which is perhaps of still greater interest, was observed on the same side of the neck:—A distinct muscle, three inches long and one-eighth of an inch wide, arose from the areolar tissue over the pericardium a little to the left of the middle line, and passed upwards and outwards, crossing the middle line and under the lower part of the right sterno-thyroid and its clavicular slip, to be inserted into the anterior surface of the carotid sheath opposite the crico-thyroid membrane. Its nerve supply came from the branch of the descendens noni which supplied the sterno-thyroid and its other slips. The exact origin of the slip, whether from the pericardium or from the back of the sternum, could not unfortunately be accurately ascertained in consequence of the parts having been slightly disturbed during the opening of the thorax for the purpose of injection. A well-marked levator glandulæ thyroideæ was present. In the last volume of the St. Bartholomew's Hospital Reports a somewhat similar condition of the sterno-thyroid crossing the middle line of the neck was described.

Professor Humphry¹ states that the sterno-thyroids are occasionally connected with the corresponding muscles of the opposite side by slips passing across the middle line; and Mr.

¹ British Medical Journal, vol. i. 1873, p. 685.

Wood¹ has also noticed them decussating across the middle line of the neck by a considerable portion of their inner fibres, an arrangement which, as he points out, is found in the squirrel and some other rodents. In the paper before referred to in the Hospital Reports for last year, it was stated that in the great ant-eater the sterno-thyroids decussate across the middle line, but that the decussation in these animals takes place behind the sternum, the muscles arising in the interior of the thorax as far back as the eighth bone of the sternum. In the present abnormality we have a muscle arising in the thorax, and, after passing across the middle line, terminating upon the carotid sheath, and supplied, moreover, by the same nerve as that which supplies the sterno-thyroid, which muscle in this subject was itself abnormal and joined by a portion of its fellow of the opposite side. This condition reminds us of the normal arrangement of the sterno-thyroids in the ant-eater, and is suggestive of a reversion of these muscles to a lower type.

The slip ending on the carotid sheath has been noticed by Wood, and has been called by him *costo-fascialis cervicalis*.²

A distinct clavicular slip has also been seen by several authors, and the similarity of such an arrangement with the disposition of the sterno-thyroid in the skink has been remarked upon by Professor Humphry.³ In an interesting specimen noticed by Wood⁴ the tendon of the omo-hyoid played as through a pulley round the slip.

Abnormality of the Sterno-Thyroid and Thryo-Hyoid—A Slip from the Sterno-Thyroid passing up to the Tongue.

The following very interesting abnormalities of the depressor muscles of the hyoid occurred in the same body on the left side of the neck. The sterno-hyoid was normal with the exception of a faint trace of a tendinous intersection half an inch above that which is commonly found, and which was present in this case opposite the lower border of the cricoid cartilage. The sterno-thyroid arose by two separate and distinct portions—one from the upper and back part of the sternum, the other from the back of the sternal end of the clavicle and sternoclavicular articulation, a distinct cellular interval existing between the sternal and clavicular portions. These slips coalesced about three-quarters of an inch below the lower

¹ *Proceedings of Royal Society*, vol. xvi. 1868, p. 490.

² *Ibid.* vol. xiv. 1865.

³ *British Medical Journal*, vol. i. 1873, p. 695.

⁴ *Proceedings of Royal Society*, vol. xvi. 1868, p. 490.

border of the cricoid cartilage, and terminated obliquely on a narrow flattened tendon, which ran up to be inserted into the upper border of the thyroid cartilage at the base of the superior cornu. The muscular fibres terminated upon this tendon, internally, opposite the lower border of the isthmus of the thyroid body; externally, opposite the lower border of the cricoid cartilage. The thyro-hyoid had a normal origin from the oblique line on the ala of the thyroid cartilage; but, besides this, its middle fibres arose by a tendinous band, becoming muscular, from the inner side of the cricoid cartilage, just anterior to the origin of the inferior constrictor. The muscle thus formed was inserted as usual into half the body and half the greater cornu of the hyoid bone. A thin muscular slip running parallel to the posterior border of the thyro-hyoid arose from the tendinous insertion of the sternothyroid near its termination, and was inserted into the greater cornu of the hyoid bone, immediately behind the thyro-hyoid. It was supplied by a small twig from the special branch of the hypo-glossal nerve to the thyro-hyoid muscle. A narrow muscular slip arising behind the left lateral lobe of the thyroid body, in part from the posterior surface of that body, and in part also from the prevertebral fascia, ran over the crico-thyroid muscle, the inferior constrictor, the thyroid cartilage, the thyro-hyoid membrane, the body of the hyoid bone, and the hyo-glossus muscle, but beneath the omo-hyoid and stylo-hyoid muscles, the tendinous attachments of the digastricus, the hypo-glossal nerve, and the mylo-hyoid muscle to the upper part of the hyo-glossus, where it blended with that muscle. It was supplied by the hypo-glossal nerve, and by the special branch of that nerve to the thyro-hyoid muscle. Some filaments from the external laryngeal nerve also apparently entered it.

The presence of the slip extending from the thyroid body to the hyo-glossus is of considerable interest. It appears to represent the part of the sterno-thyroid which was absent, and in that case reminds us of the arrangement of these muscles in the ant-eater, in which animal the homologous muscles normally extend from the sternum to the tongue. Mr. Wood¹ has noticed a considerable portion of the posterior fibres of the sterno-thyroid and omo-hyoid "split off, and the two slips uniting together inserted partly into the tip of the great cornu of the hyoid bone, but chiefly blended with the fibres of the hyo-glossus and middle constrictor." The second

¹ Proc. Roy. Soc., vol. xvi. 1877-78, p. 487.

slip in the present example, arising from the tendon of the sterno-thyroid and inserted into the greater cornu of the hyoid bone, would appear homologous with that part of the slip described by Mr. Wood as inserted into the greater cornu.

At Guy's Hospital¹ the sterno-thyroid has been observed "to give off a muscular slip which passed up over the hyoid bone to be inserted in the deep cervical fascia of the submaxillary triangle."

A Variety of the Costo-Fascialis Cervicalis (Wood).

A muscular slip, four inches long and three-sixteenths of an inch wide, arose, separate from the rest of the sterno-thyroid, from the cartilage of the first rib, and passed up the neck to be inserted into the front of the sheath of the carotid vessels just below their bifurcation opposite the upper border of the thyroid cartilage. Two additional slips arose from the inner side of the primary slip, just above the clavicle, and passing in a direction upwards and inwards from the first slip, united one inch below the cricoid cartilage to form a single muscle, which passed up to be inserted into the upper border of the thyroid cartilage just external to the highest point of insertion of the sternal portion of the sterno-thyroid. The nerve supply of both slips came from the descendens noni. A slip similar to this, but in conjunction with a different variation in the sterno-thyroid, was described in the Hospital Reports of last year, and an explanation was there suggested of the significance of this abnormality.

A Crico-Hyoid Muscle.

A crico-hyoid muscle, consisting of a slip composed of two muscular bellies intervening between three tendons, arose from the lower border of the cricoid cartilage, just external to and to the right of the median line, and was inserted into the lower border of the hyoid bone, near the median line. The slip measured two inches in length, and three-sixteenths of an inch in width. At its origin it was tendinous, but at the upper border of the cricoid became muscular, and at the lower border of the thyroid cartilage again tendinous. Its insertion was also tendinous. A second muscular portion about three-eighths of an inch long existed in the tendon opposite the middle of the thyro-hyoid membrane.

¹ Guy's Hospital Reports, 1868, p. 437.

By the demonstrators at Guy's Hospital,¹ the sterno-thyroid has been observed to arise from the cricoid cartilage only.

The presence of these tendinous intersections in the vertical muscles of the neck appear to be of great interest. The intersections seen in the sterno-thyroid and sterno-hyoid are recognised as serially homologous with the transverse inscriptions in the rectus abdominis and sternalis, and are regarded by Professor Humphry and others as the remnants of the transverse septa in the primitive ventral muscle. The transverse septa in the above slip would appear to be of the same nature.

Absence of the Anterior Belly of the Omo-Hyoid.

The posterior belly in this body was normal. The place of the anterior belly was taken by a tendinous expansion which coursed up the neck to the hyoid bone. Several abnormal slips also passed from the hyoid bone to the cricoid cartilage and thyroid body (see below).

An example of the absence of the anterior belly of the omo-hyoid was recorded in last year's Reports.² In that case also a tendon took the place of the absent muscle, but was much less distinct than in the present example. The absence in the former case was explained on the supposition that the anterior belly had not been differentiated from the primitive brachiocephalic sheet from which the depressors of the hyoid are developed. In the present case, however, the differentiation seems to have proceeded to a greater degree than is normal, so that in place of a single anterior belly of the omo-hyoid, we have several muscular slips.

Muscular Slips from the Hyoid Bone to the Cricoid Cartilage and Thyroid Body.

In the body in which the anterior belly of the omo-hyoid of the left side was tendinous three fleshy slips arose from the lower border of the hyoid bone just external to the sterno-hyoid muscle, and running parallel to one another were inserted as follows:—The outer and innermost were inserted into the isthmus and left lateral lobe respectively of the thyroid body, after the fashion of the ordinary levator glandulae thyroideæ. The middle slip opposite the crico-thyroid membrane became tendinous, and was inserted into the lower border of the cricoid cartilage.

¹ Guy's Hospital Reports, 1868, p. 437.

² Page 72.

A Hyo-Fascialis Cervicalis.

This slip, measuring nearly half an inch in breadth, arose from the lower border of the body of the hyoid bone just internal to the thyro-hyoid, of which it appeared to be a part, and after passing about an inch down the neck divided into two portions. One of these was attached after the manner of the levator glandulae thyroideæ to the left lateral lobe of the thyroid body. The other split into three parts, measuring in width one-eighth, one sixteenth, and one-sixteenth of an inch respectively, which, after passing the isthmus of the thyroid body without being attached to it, were inserted separately into the fascia over the trachea about an inch and a half above the sternal notch, opposite the tendinous intersection in the sterno-hyoid. In the upper part of the neck this slip was covered by the sterno-hyoid.

Abnormality of the Posterior Belly of the Omo-Hyoid.

The posterior belly divided into two portions; one part was attached to the scapula in the normal manner, the other part was inserted into the middle third of the clavicle. The most interesting feature in this variety, however, was the presence of a third slip stretching from the clavicular portion of the muscle to the insertion of the scapular portion.

Wood has observed an abnormality in some respects similar to this, viz., a slip of muscle passing from the upper border of the scapula and suprascapular ligament, where it was connected to some extent with the origin of the omo-hyoid, to the clavicle into which, together with the subclavius muscle, it was inserted. The omo-hyoid, however, had not a clavicular attachment as it had in this case, but a slip passed from the suprascapular ligament to be inserted by a tendon into the cartilage of the first rib below the subclavius, from which latter muscle it was quite distinct.

In another body the posterior belly of the omo-hyoid was double on the left side. The second belly arose from the clavicle and ended in a tendon which joined the anterior belly, leaving the ordinary intermediate tendon distinct and free. Several examples of a double posterior belly of the omo-hyoid were published in the Hospital Reports for last year (vol. xvi. 1880).

A Slip extending from the Mastoid Process to the Carotid Sheath opposite the Cricoid Cartilage.

A muscular slip, a quarter of an inch in breadth and four inches in length, ran along the anterior edge of the sterno-

mastoid and slightly under cover of that muscle, so as to appear at first sight a part of it. It arose by a round slender tendon from the apex of the mastoid process of the temporal bone in front of the digastricus, and was inserted by a small round tendon terminating in an expansion on the sheath of the carotid vessels opposite the lower border of the thyroid cartilage. An exactly similar slip was described in the Hospital Reports for last year (page 83.)

The Anterior Fibres of the Trapezius extending across the Lower Part of the Posterior Triangle in the Form of an Arch.

Two examples of this interesting abnormality were described in the St. Bartholomew's Hospital Reports for 1880, page 81. Another example, in all respects similar to those, has been seen during the last year, making the third abnormality of this description that has occurred during eight years of observation in the dissecting-rooms.

Muscular Slips crossing the Posterior Triangle of the Neck from the Occipital Bone to the Clavicle (Cleido-Occipital).

A muscular slip arose from the superior curved line of the occipital bone immediately behind the posterior border of the right sterno-mastoid muscle. Following the border of the sterno-mastoid for two inches, it divided into two—one slip coursed vertically down the posterior triangle, and was inserted into the middle of the posterior border of the clavicle an inch removed from the insertion of the sterno-mastoid. The other slip took a course downwards and backwards, and joined the clavicle at the anterior edge of the insertion of the trapezius. On the opposite side a slip arose by a tendon two inches long from a similar position on the superior curved line, but did not divide, but continued down the posterior triangle, and expanding till it measured half an inch in breadth in its lower inch, was inserted into the posterior border of the clavicle three-quarters of an inch from the posterior edge of the sterno-mastoid muscle. A slip similar to that which existed on the left side has been noticed by Meckel,¹ Wood,² and others. It is named by Mr. Wood the cleido-occipital, and regarded by him as a lateral extension and separation of part of the clavicular fibres of the sterno-cleido-mastoid. He has found it "constituting in the guinea-pig and some other rodents a separate muscle, entirely distinct from the

¹ Handbuch der Mensch. Anat., 1816, p. 474.

² Proc. Roy. Soc., vol. xv. p. 230.

sterno-mastoid, carrying with it the whole of the clavicular fibres of the sterno-cleido-mastoideus."

The first variety, that on the right side, may be regarded as a double cleido-occipital. A condition somewhat similar to, though not in all respects resembling this, has also been seen by Mr. Wood, in which both portions were distinct from both the sterno-mastoid and the trapezius. In another case described by this author, the posterior portion did not reach the trapezius, and the anterior portion crossed the cleidal portion of the sterno-cleido-mastoid to be attached to the sternal end of the clavicle.

In this body also the posterior belly of the omo-hyoid was double on the left side.

A Slip extending from the Transverse Process of the Atlas to the Clavicle (Levator Claviculae).

The slip arose from the front of the lower border of the transverse process of the atlas, and ran obliquely beneath the sterno-mastoid to be inserted into the posterior border of the clavicle a quarter of an inch below the sterno-mastoid muscle. Similar slips have been described by Mr. M'Whinnie¹ and by Mr. Wood in his papers in the "Proceedings of the Royal Society," under the name of the levator claviculae, with which muscle of some animals it is the homologue. In the specimens described by these authors, however, the muscle either arose with or appeared as part of the levator anguli scapulæ, or when separate was attached to the transverse process of the second and third, and even the fourth, cervical vertebrae. The slips also differed from the present one in that they were inserted into the middle or posterior third of the clavicle, and generally under cover of the anterior fibres of the trapezius; whereas in this example the slip took a more forward direction, and was inserted into the clavicle behind the sterno-mastoid. The levator claviculae, as stated by Mr. Wood, is to be found in all the ape tribe. Other examples of imperfect levatores claviculae (*i.e.*, similar muscular slips inserted into the cervical fascia, having apparently just missed an attachment into the clavicle), are referred to by Mr. Wood in vol. xvi. of the "Proceedings of the Royal Society." Varieties of this muscle blending with the first digitation of the serratus magnus have also been described: a good example came under my own observation during the last year. By Professor Humphry these slips are named cervico-humeral. He has seen one attached to the sternal end of the clavicle, just external to the attachment of the sterno-mastoid (in this respect resembling our slip). They are regarded by

¹ London Med. Gaz., No. 948, 1846, p. 194.

him as the result of an imperfect limitation of the trapezius, so that through them its range of origin is extended to the transverse processes of the cervical vertebrae, as is the case in lepidosiren and some other animals.

A Slip from the Levator Anguli Scapulae to the Serratus Posticus Superior and Spine of the Seventh Cervical Vertebra.

This slip measured three-quarters of an inch in breadth and two inches in length. It came off from the lower part of the levator anguli, and curving gently downwards and inwards towards the spine, became tendinous, and joined the tendon of the serratus where the latter terminates in its muscular fibres. This abnormality has been observed by Mr. Wood.¹

A somewhat similar slip passing to the spines of the first and second dorsal vertebrae has been seen at Guy's Hospital.²

The following abnormality appears but a modification of the foregoing:—

A Slip extending from the Atlas to the Spine of the Seventh Cervical Vertebra.

The slip arose from the transverse process of the atlas behind the levator anguli scapulae, with the first slip of which it was blended, ran parallel to the splenius colli, above the serratus posticus superior, and was inserted into the spine of the seventh cervical and in part into the spine of the first dorsal vertebra. At its insertion it was blended with the tendinous origin of the serratus posticus superior, its fibres, however, crossing those of the latter obliquely. A similar abnormality existed on the opposite side.

A Slip from the Splenius Colli to the Serratus Posticus Superior.

This slip, which arose from the transverse process of the atlas in common with the first slip of the splenius colli, was inserted into the aponeurosis of the rhomboideus major. This muscle has been observed by Mr. Wood,³ Macalister, F. Walther, and others, and has been called the rhombo-atloid.

¹ Proc. Roy. Soc., 1868, p. 489.

² Guy's Hospital Reports, vol. xviii. p. 391.

³ Proc. Roy. Soc., 1868, p. 490.

A Slip from the Occipital Bone to the Levator Anguli Scapulae.

Arising from the superior curved line of the occipital bone by a short tendon immediately posterior to the insertion of the sterno-mastoid, this slip ran obliquely under the trapezius, and blended with the lower part of the levator anguli scapulae. Such a slip is stated by Quain¹ to have been observed by Theile; but it must be rare, as I have not been able to find it mentioned by Wood, Humphry, or others.

A Two-bellied Muscle extending from the Axis to the Basilar Process of the Occipital Bone (Rectus Capitis Anticus Medius).

This remarkable muscle consisted of two parallel fleshy portions arising from a single centrally placed tendon attached to the body of the axis. The tendon, which was smooth, round, and half an inch long, arose from the middle of the anterior surface of the body of the axis, and after a course vertically upwards exactly in the middle line bifurcated, each portion terminating in a small muscle an inch long and a quarter of an inch wide. The little muscles thus formed ran parallel to and in contact with one another on each side of the middle line, and were inserted into the basilar process of the occipital bone, just in front of the foramen magnum, posterior to the insertion of the rectus capitis anticus major, and internal to that of the minor.

I have been unable to find an account of a similar abnormality recorded by any of the authorities whose works I have had the opportunity of consulting.

In this body the basilar process in front of the insertion of the constrictors presented a smooth conical-shaped depression half an inch deep, lined with the mucous membrane of the pharynx. It had no communication with the sphenoidal cells, and there was no trace of it on the upper surface of the basilar process. The only explanation which suggested itself was, that it was a remnant of the space between the trabeculae crani, through which the prolongation of the pharynx passes to join the process from the first cerebral vesicle, and so to lead to the formation of the pituitary body.

Abnormal Muscular Slips connected with the Styloid Process—The Stylo-Hyoid Ligament Ossified (a distinct Tympano-Hyal, Stylo-Hyal, Epi-Hyal and Cerato-Hyal).

In this subject the hyoid bone was connected on both sides with the temporal by a series of small bones taking the place of

¹ Quain's Anatomy, vol. i. p. 192.

the styloid process and stylo-hyoid ligament, an arrangement resembling in a marked manner the hyoidean apparatus in the dog. On both sides these series of bones, taken collectively, measured from the base of the skull to the body of the hyoid three inches and three-quarters. On the left side, between the skull and the body of the hyoid, there were four distinct bones connected with each other, either by cartilage and fibrous tissue, or by distinct synovial joints. The first piece of bone, proceeding downwards from the skull, measured about an inch; it was slightly movable, but its exact attachment to the skull was, unfortunately, not ascertained. The vaginal process covered it anteriorly for half an inch, and was connected with it by a strong, flat, ligamentous band. The second portion of bone measured three-quarters of an inch in length; it was tipped at each end with cartilage, and was connected above to the first and below to the third by a distinct movable joint. The ends of the bones were bound together with fibrous tissue, but we were unable to satisfy ourselves whether a synovial cavity actually existed between them. The third portion measured one inch and three-quarters in length; it articulated below through a distinct synovial joint with the fourth, which in its turn articulated also by a synovial joint with the posterior and upper part of the body of the hyoid bone, which at this spot was hollowed out into a cup-shaped cavity to receive it. A thin, delicate, muscular slip, measuring a little over an inch in length, arose from the first piece of bone immediately below the external auditory meatus, and immediately behind the glenoid cavity, and from the adjacent cartilage of the ear. It was inserted by a delicate tendon into the second bone, just below the junction of the latter with the first bone. A second slip, measuring an inch and a half in length, and from one-eighth to one-sixth of an inch in thickness, arose from the anterior and inner border of the third bone, near its upper end, and passed down in contact with it, to be inserted into the cartilaginous disc which capped its lower end. This slip did not, therefore, pass across the synovial joint on to the fourth bone.

On the right side there were only two portions of bone between the temporal and the hyoid. Beginning at the temporal, there was first a piece of bone measuring one and three-eighths of an inch; then a cartilaginous nodule one-eighth of an inch long; then a ligament for three-eighths of an inch; then bone extending to the hyoid. This last piece articulated through a very movable synovial joint, with a cup-shaped cavity at the upper and posterior extremity of the body of the hyoid. The stylo-hyoid, stylo-pharyngeus, and stylo-glossus arose from the highest piece

of bone; the origin of the middle constrictor extended for some distance up the lowermost piece of bone. There were no abnormal slips corresponding to those found on the left side.

I have frequently found the styloid process of an unusual length, owing to the ossification of more or less of the stylo-hyoid ligament, but I have not before seen four distinct portions connected by movable joints. The homology here with the hyoidean apparatus of the dog would seem to be complete. Beginning from below, the fourth piece of bone—the overgrown lesser cornu—clearly represents the cerato-hyal; the third portion the epi-hyal; the second, I think, may be compared to the stylo-hyal; the first to a greatly overgrown tympano-hyal. "This latter," says Professor Flower,¹ "can generally be recognised in the skull of an infant at birth, and for a few years after, as a cylindrical piece of bone with a truncated lower extremity, about one-twentieth of an inch in diameter, seated in a depression in the hinder border of the tympanic, immediately to the anterior and inner side of the stylo-mastoid foramen. Its upper end becomes soon ankylosed with the periotic. The tympanic is produced around it anteriorly, constituting the vaginal process." It is a matter of regret that the exact attachment of this first portion could not be ascertained; it appeared to move as if it articulated with the periotic and tympanic.

On the right side the homology of the bones was not so plain. Here there were two portions of bone—one upper and one lower—with an intervening portion of ligament and cartilage. The upper portion presented the ordinary appearances of the normal styloid process, the three muscles arising from it in the normal manner. The lower portion measured an inch and seven-eighths, and articulated directly with the body of the hyoid through a synovial joint. This portion, therefore, may be taken to represent the cerato-hyal or greatly elongated lesser cornu of the hyoid. The next portion (which was ligamentous) would then represent the epi-hyal, the nodular cartilage the stylo-hyal, and the upper portion of bone the tympano-hyal. As the three styloid muscles, however, arose from this upper portion, it is more probable that it was really the stylo-hyal, and that the nodular cartilage, which might be said to be in the ligament, represented the epi-hyal. There were no synovial joints with the exception of that between the lowest portion of bone and the hyoid on this side of the neck. In the Guy's Hospital Reports² an example of an extensive ossification of the stylo-hyoid ligament is described. "The styloid process was of ordi-

¹ Osteology of the Mammalia, p. 134.

² Vol. xvi. 1870-71, p. 148.

nary length, and about an inch below it the ligament became ossified for an inch and a half, and this piece of bone was inserted by ligament again with the lesser cornu of the hyoid." The styloid process was here ankylosed to the skull; but there were no synovial joints. It is stated, however, further on in the article above referred to, that the process in more than one instance has been noticed to have been movably connected by short ligaments "with the little bone named tympano-hyal." Such a condition has also been frequently noticed at St. Bartholomew's.

With regard to the muscular slips which were connected to the bones on the left side, these have not, as far as I know, been described. The lowermost one appears to have taken the place of the normal stylo-hyoid, or else to have been accessory to it. The students who dissected the parts were not agreed as to the existence of another stylo-hyoid. There was no trace of one when I examined the parts.

Accessory stylo-hyoïds have been noticed by several observers.¹ At Guy's² such an accessory slip has been seen inserted into the lesser cornu.

Muscular and Tendinous Slips between the Cartilage of the Ear and the Styloid Process.

Several interesting varieties of the above have been met with. In one case a muscular slip arose by two heads, the upper one by a tendinous expansion from the anterior border of the inner extremity of the cartilage of the meatus of the ear, the lower one by muscular fibres from the posterior border of the same. Each head was about half an inch in length. Soon after the union of the two heads the muscular slip divided into an anterior superior and a posterior inferior. The former, after a course of about half an inch, terminated in a round tendon, and was inserted by it into the outer and anterior surface of the styloid process. The latter terminated on a tendinous band, which passed over the facial nerve and the posterior auricular artery, and was inserted into the fascia behind the external carotid.

In a second case a muscular slip, three-quarters of an inch in length, arose by muscular fibres from the posterior inferior extremity of the cartilaginous part of the external auditory meatus, and ended on a tendon which, after a course of half an inch, bifurcated, the inferior and lower portion being inserted

¹ Lawson Tait, Jour. Anat. Phys., May 1870; Macalister, ibid., Nov. 1870; Guy's Hospital Reports, vol. xviii, pp. 390, 350.

² Guy's Hospital Reports, vol. xviii, p. 390.

into the outer and anterior surface of the styloid process between the fibres of origin of the stylo-glossus; the other, after a course of a quarter of an inch, terminated in a fleshy slip which ultimately became blended with the fibres of the stylo-glossus muscle about an inch from its origin. Gruber has seen a stylo-glossus arise from the external auditory meatus. As these slips were connected with the stylo-glossus, it seems probable they might bear some relation to that muscle.

See also page 68 for slips to styloid process.

Varieties of the Sub-Scapulo-Capsularis.

The following interesting specimens of this abnormality were carefully dissected by Mr. Pruen.

(1.) A muscular slip three inches long and half an inch broad arose by a flat expanded tendon from the capsular ligament of the shoulder-joint, ran over the tendon of insertion of the subscapularis, and was inserted into the humerus below the lesser tuberosity about half an inch from the bicipital groove. An axillary slip was not present. A corresponding muscular slip did not exist in the opposite arm.

(2.) A muscular slip arose from the fascia over the tendon of insertion of the subscapularis, and from the tendon of insertion of the supraspinatus, and was inserted obliquely along the inner part of the inner lip of the bicipital groove. In this subject there was another extra slip on the inner side of the above, arising from the under surface of the coracoid process half an inch from its tip, and inserted into the inner lip of the bicipital groove as far down as the lower fibres of the insertion of the latissimus dorsi.

(3.) A muscular slip, two and a half inches long and half an inch wide, arose by a thin flat tendon from the lesser tuberosity of the humerus, and from the tendinous insertion of the subscapularis half an inch below, and external to the coracoid process. It passed down over the axillary slip of the subscapularis, which was well developed, to be inserted by a thick flattened tendon into the neck of the humerus, just external to the outer lip of the bicipital groove, one inch below the upper border of the tendon of the latissimus dorsi.

(4.) A slip arose from the tendon of the subscapularis, and internally was continuous with the superior fibres of that muscle, a tendinous intersection only intervening. Externally the fibres arose from strong fascia under the coraco-

acromial ligaments, but had no connection with the coracoid process. It was inserted into a tendinous band which extended from the inferior extremity of the lesser tuberosity to a little above the middle of the inner side of the anterior surface of the humerus. The insertion of the muscular fibres into this band extended from the lesser tuberosity of the humerus for one inch. Into the lower part of the band the middle portion of the coraco-brachialis was inserted, the fibres extending from the lower border of the tendon of the latissimus dorsi to the lower portion of the insertion of the band into the bone. Opposite the latissimus dorsi the band had no fleshy fibres inserted into it.

(5.) A muscular slip, two inches long and one inch broad at its widest part, arose from the tendon of the subscapularis, and was inserted into the inner lip of the bicipital groove for three-quarters of an inch above the insertion of the lowest fibres of the latissimus dorsi, *i.e.*, just external and parallel to the insertion of the subscapularis into the shaft of the humerus below the lesser tuberosity. A similar slip was found in the opposite arm. A branch from the outer cord of the brachial plexus entered it at about its middle part.

(6.) A slip of a deltoid shape arose from the internal superior margin of the tendon of the subscapularis, also from the fascia beneath the coraco-acromial ligament, and was inserted into an oblique line three-quarters of an inch long between the insertion of the latissimus dorsi and the axillary slip of the subscapularis, which was well developed. Its greatest width was one inch and a half, its greatest thickness one sixteenth of an inch.

(7.) A slip arose by muscular fibres from the under surface of the coracoid process midway between its base and apex, but quite distinct from the attachments of the coraco-brachialis and pectoralis minor. It was inserted by a rounded tendon into the inner lip of the bicipital groove just internal to the insertion of the latissimus dorsi, and immediately above the upper border of insertion of the teres major. It measured four inches in length; its greatest breadth was three-quarters of an inch. Its nerve came from the outer cord of the brachial plexus, and entered the muscle three-quarters of an inch below the tip of the coracoid process. It also received another filament from a nerve which was apparently derived from the branch of the internal cutaneous which supplies the skin over the biceps muscle. The axillary slip from the subscapularis muscle was very slightly developed in this body.

The superior portion of the coraco-brachialis was absent. The muscle ran parallel to the coraco-brachialis, crossing the fibres of the subscapularis almost at a right angle.

Its arterial supply was from a branch of the axillary. This branch also supplied the upper part of the coraco-brachialis. There was no corresponding muscle on the opposite side.

Similar slips have been described by Wood, and are supposed to represent part of the coraco-brachialis, which he conceives to be typically composed of three parts. The present specimens seem to bear out this view.

From the preceding descriptions it will be seen that the slips present every grade of union between the subscapularis and coraco-brachialis. In one extreme case the slip had its origin with the coraco-brachialis and its insertion adjacent to that of the subscapularis. In another it was continuous at its origin with the fibres of the subscapularis, a tendinous intersection alone intervening, whilst it was inserted by a ligamentous band, common to it and the coraco-brachialis, into the middle of the inner half of the shaft of the humerus. Intermediate stages between these two slips were also well represented in the different slips dissected. Indeed, on almost every other body one of these slips can be recognised. The frequency of their occurrence, the two extreme stages, and the regular progression from one to the other, would lead one to suspect some primitive union between these two muscles, the frequently recurring slips being the persistent remains of their connection, as the axillary slips, far more rarely met with, are said to be the indication of the original union of the pectoralis major and latissimus dorsi. Indeed, these connecting slips between muscles are far more common than one would imagine from books on anatomy, in the lower limb slips of communication between the rectus, iliacus, and vastus internus being of almost constant occurrence.

A Slip from the Biceps to the Internal Intermuscular Septum.

The slip was derived from the inner side of the biceps opposite the insertion of the coraco-brachialis, and expanding as it ran downwards and inwards, was inserted into the internal intermuscular septum as low as to within two inches of the internal condyle. It measured five inches in length, and in breadth five-eighths of an inch at its origin from the biceps, and one inch and a half at its insertion into the intermuscular septum. It passed over the brachial artery and median nerve. From the inner side of this slip a secondary slip was derived, and was inserted into the fascia over the triceps muscle. It crossed the

basilic vein, but ran underneath the internal cutaneous and lesser internal cutaneous nerves.

Quain¹ records a similar abnormality, but without a secondary slip; and a somewhat similar one passing from the coracobrachialis has been seen. Slips from the biceps have also been traced to the pronator teres, flexor carpi radialis, capsule of the elbow-joint, and fascia over the brachial vessels by Grube, Henle, and Theile.

A First Palmar Interosseus.

This muscle, about the size of a normal palmar interosseus, arose from the base of the metacarpal bone of the thumb on the inner side of its palmar aspect. It was inserted into the inner side of the base of the first phalanx of the thumb. Henle and Wood have observed a similar muscle, but inserted into the dorsal aponeurosis.

An Extensor Digiti Medii.

This slip arose from an oblique line on the ulna immediately below and internal to the origin of the extensor indicis. After a course of two inches the fleshy fibres terminated on a tendon which was inserted with the common extensor tendon of the little finger into the metacarpal phalanx. The extensor indicis of this hand was inserted into the base of the first phalanx as well as into the common extensor tendon. Examples of the foregoing variation are recorded by Quain, Humphry, Wood, and the demonstrators of Guy's and St. Thomas' Hospitals.

A Curvator Coccygis.

This muscular band, measuring one inch in breadth at its widest part, passed down the concavity of the sacrum and was inserted into the front of the coccyx. A similar slip running behind, as well as one, like the present, running in front of the sacrum, has been described.

A Slip from the Pelvic Fascia to the Sacrum.

This slip measured one inch in breadth at its origin. It arose by muscular fibres from the pelvic fascia just above the spine of the ischium and in front of the great sacro-sciatic notch. As it approached the sacrum it narrowed to a quarter of an inch in breadth, and at this spot it became tendinous. The tendon

¹ R. Quain, Anat. of the Arteries, p. 270, pl. 57.

from here expanded and was inserted into the front of the sacrum on its outer border just above the insertion of the coccygeus, some of the fibres being spread over the insertion of the latter muscle. The length of the slip was two inches and a half.

An Accessory Slip to the Accelerator Urinæ.

The slip, which measured two and a half inches in length and half an inch in width, arose from the tuberosity of the ischium by a pointed tendon a little posterior to the origin of the erector penis, and lay between the anterior layer of the triangular ligament and the deep layer of the superficial fascia (fascia of Collis). It was inserted by a flat expanding tendon partly into the triangular ligament and corpus spongiosum and partly into the accelerator urinæ. The superficial and deep transverse perinei muscles were normal.

On the opposite side a similar slip existed. It arose from the inner surface of the ischium, about half an inch in front of the tuberosity, internal to and a little below the origin of the erector penis. After a course of two inches it divided into two distinct portions, one being inserted into the corpus spongiosum, the other blending with the fibres of the accelerator urinæ. The superficial perineal vessels and nerves were superficial to the slip.

Slips somewhat resembling this, but passing from the origin of the erector penis across the middle line to meet a corresponding slip from the opposite side, have been described by Houston, under the name of the compressores venæ dorsalis penis.

An Accessory Transversus Perinæi.

A strong muscular slip arose from the usual attachments of the transversus perinei to the ischial tuberosity, and was inserted with the front fibres of the accelerator urinæ into the dorsal fascia of the penis and corpus cavernosum in front of the erector penis. A similar slip is described by Mr. Wood, who was the first to notice the abnormality.¹

An Accessory Slip to the Iliacus.

A muscular slip, measuring five inches in length, five-eighths of an inch in breadth, and three-eighths in thickness, arose by muscular fibres from the inner border of the tendon of the rectus femoris, and to a slight extent from the inner and lower parts of the anterior inferior spine of the ilium. It was inserted into the

¹ Proc. Roy. Soc., 1864, p. 302.

femur external to and a little below the insertion of the iliacus, and blended slightly with the lowermost fibres of that muscle. It had no connection with the capsular ligament of the hip-joint. There was no corresponding slip on the opposite side.

The slip bears some resemblance to that called the iliacus minor or ilio-capsularis, which arises from the anterior inferior spine of the ilium and the capsule of the hip-joint, and which, as far as my observation goes, is almost invariably present. In the above variation the slip is remarkable in having no connection with the capsule of the hip-joint and in arising from the tendon of the rectus as well as from the anterior inferior spine of the ilium.

A Portion of the Gluteus Minimus joining the Tensor Fasciae Femoris.

The gluteus minimus in this body, in addition to its normal origin, also arose from the surface of the capsular ligament below the reflected and straight head of the rectus. Besides its ordinary insertion it gave off a distinct muscular slip, which joined the tensor fasciae femoris, and with it was inserted into the fascia lata of the thigh. On the right side the parts were normal.

In some of the ape tribe the anterior fibres of the gluteus minimus form a distinct muscle—the scansorius or invertor femoris. Here we have an attempt at such an arrangement.

Slips of a similar origin, save that they have not joined the tensor fasciae femoris, have been described by several anatomists, and regarded by them as homologous with the scansorius.

An Opponens Minimi Digihi Pedis.

The muscle arose with the flexor minimi digiti, with which muscle it was blended posteriorly, and was inserted by muscular fibres into the whole length of the shaft of the metatarsal bone of the little toe on its outer side.

This muscle is well developed in the apes, and although we have seen it but once this year, seems to be not so very uncommon, as we find it described by Henle, Wood, Humphry, and several others.

Absence of the Common Iliac Artery on the Left Side.

The aorta divided into three branches opposite the middle of the fourth lumbar vertebra—a right common iliac, a left external, and a left internal iliac. The two last ran for a short distance

parallel to one another, and then followed their usual course and were distributed in the normal manner.

Cruveilhier¹ records one instance of the absence of the right common iliac. I have not met with an account of the absence of the left.

In the horse there are no common iliacs.

A Double Inferior Vena Cava.

The left common iliac vein, instead of crossing to the right side to join the right vein and form an inferior vena cava, bifurcated, one branch crossing the spine to join the opposite common iliac, the other and slightly smaller one running up to the left of the aorta as far as the left renal, where it crossed transversely the spine to join the right cava. The left renal vein before reaching the left cava split into two parts; one ran slightly downwards to join the left cava, and the other one, after receiving the left suprarenal, joined, just before it crossed the aorta, the combined left inferior cava and the lower branch of the left renal. The left spermatic vein entered the left cava just below its junction with the lower branch of the renal, and at the confluence of the two latter a large vein, which became a vena azygos minor, joined them. The left lumbar veins ran behind the left to join the right cava. Anastomoses, however, existed between these veins and the vena cava. In the Hospital Reports of last year a case of double inferior vena cava was described, and suggestions as to the cause of the abnormality were offered (page 98).

The Left Lobe of the Liver supplied by a Branch of the Gastric Artery.

The hepatic artery was normal, save that its left terminal branch was much smaller than usual. The gastric artery almost equalled the hepatic in size. At the spot where it reaches the lesser curvature of the stomach it divided into two branches; one was continued along the lesser curvature and distributed in the usual manner as the gastric; the other curved upwards and to the right, and reaching the back of the portal fissure, was distributed to the left lobe, which it almost entirely supplied. Anastomoses behind the portal vein occurred between the abnormal branch and the greatly diminished left branch of the hepatic.

Accessory hepatic arteries, springing in most cases from the coronary, are said by Quain to be not so very uncommon. I have myself occasionally noticed such accessory twigs, but never

¹ Anat. Dis., vol. iv. p. 186.

before witnessed the whole of one lobe supplied almost entirely by so large an accessory vessel. A partial supply to the left lobe from such a source had been seen by the demonstrators at Guy's.

An Accessory Foramen in the Scapula.

In this instance the suprascapular nerve divided on the ventral side of the scapula. The superior division passed through the suprascapular notch in the normal manner; the inferior division run through an elliptical foramen in the scapula a quarter of an inch below the suprascapular notch. Immediately before passing through the accessory foramen the inferior division of the nerve gave off a filament which passed under an accessory ligament to supply the scapula on its ventral surface.

In another case a similar accessory ligament was present, forming a ligamentous bridge on the ventral surface immediately below the suprascapular notch, which was normal in this instance. Under this ligament a branch from the suprascapular artery passed to supply the bone.

REPORT
OF
CASES OF EMPYEMA TREATED BY IRRIGATION,
WITH REMARKS UPON THE OPERATION OF
PARACENTESIS THORACIS.
BY
PHILIP J. HENSLEY, M.D.

Of the following cases, the first, in which the result of the treatment adopted was more or less disappointing, has a somewhat long history. That of the others, where the treatment was successful, is naturally short.

CASE I.

J. W. L., a clerk, aged 52, was admitted to Matthew Ward, St. Bartholomew's Hospital, on March 18, 1880, under my care. He was a spare man, who had usually enjoyed good health, was of temperate habits, and could give no account of any special weakness of constitution among other members of his family.

There were the signs of a considerable effusion into the left pleura; dulness, absence of breathing sounds and of vocal vibrations over the base, displacement of the heart to the epigastrium, with some soft friction sounds and an impaired percussion note near the apex in front. The breathing on the right side was of a healthy character, but somewhat exaggerated. There was but little cough and no expectoration; the pulse was good, the temperature normal, and he complained only of shortness of breath upon attempting to move about.

On March 31 he was tapped in the ordinary manner, the aspirator being used, and about 48 oz. of clear serous fluid were withdrawn.

It did not appear at the time that a sufficiency of the fluid present was evacuated, and I suspected that the cessation of flow was due to the presence of subdivisions in the fluid-containing space, or to the blocking of the canula by a coagulum. There was, however, a return of the heart to nearly its natural position, and respiratory sounds were heard somewhat lower than they had been. Beneath the clavicle and towards the mammary region the freer entry of air brought out more distinct morbid sounds, and there were to be heard various irregular, creaky, and crepitant sounds; in fact, the physical signs here were in all respects such as would certainly, taken alone, have given rise to the diagnosis of phthisis.

The shortness of breath was relieved by the tapping, but there shortly began to be signs of an increase in the effusion, and a second tapping appeared to me to be called for, but was postponed on account of a slight attack of gout. The patient afterwards passed from my care to that of Dr. Southey, who, on account of the doubtful signs at the left apex, was indisposed to interfere with the effusion. He left the Hospital on May 24.

On July 14, 1880, he presented himself at the Chest Hospital, where he was admitted under my care. He complained then of extreme shortness of breath, and could lie only on the left side. He had recently been troubled with some pain over the left side of the chest, but had no night sweats, and had been able to sleep fairly, and had kept up a fair appetite. He presented no lividity, the pulse was of fair volume, the temperature slightly above 99° F., and the condition of the urine normal.

There was a bulged appearance over the base of the left side; absolute dulness over the whole left side of the thorax up to the clavicle, and extending to nearly the right border of the sternum at its upper part; tympanitic resonance in the left supraclavicular region. Complete absence of respiratory sound over the whole of the left side, with exception of faint tubular breathing near the root of the lung; absence of vocal vibrations, and marked transmitted pulsation from the heart over the lower part where the bulging was most noticeable. Breathing on the right side was harsh. The heart's impulse was to be felt in the fourth right interspace, two inches beyond the sternal border.

The day after admission he was tapped with a fine exploring trocar connected with a bottle aspirator, and six pints of laudable pus were slowly withdrawn, greatly to his relief.

The physical signs after this tapping were on the whole cer-

tainly better than they had been after the original tapping, as there were apparently breathing sounds heard much lower, and even at the base the percussion note was not absolutely dull; the heart also returned more completely to its natural position. The apex sounds were, however, of the same nature as they had then been, and there were some indistinct signs of pneumo-thorax. On this occasion the canula became blocked when about four pints of pus had been removed, but was cleared by passing through it a reverse stream of a dilute solution of Condy's fluid from a raised vessel. This blocking and clearing recurred several times before the end, and determined me in any future tapping to provide for a reversal of current without the need of disconnecting the tubea.

On August 7th, the signs of the presence of fluid having gradually increased until there was dulness up to the third rib, he was tapped by direction of Dr. Gabbett, who was in charge for me during my absence from town. On this occasion only 15 oz. of pus were withdrawn, aspiration being hindered by the stoppage of the canula by coagula.

On August 26th, 40 oz. of pus were withdrawn, but on account of the imperfections in the instruments used it was not possible satisfactorily to complete the operation.

On September 11th, 115 oz. of pus were removed. Two fine canulae were inserted, each having connection with the receiving-bottle, and with a reservoir containing 1 per cent. solution of carbolic acid raised about three feet above the level of the bed. By means of taps the direction of the current in each canula could at any moment be reversed, so as to be either outwards or inwards.

Of the whole quantity, about 70 oz. was drained away without the admission of any of the solution, and the remainder was removed by repeated washings, between eight and nine pints of the solution being used, and the washing continued until the fluid was returned only slightly turbid. The amount of solution finally left in the chest was believed to be about 5 oz.

The patient was very greatly relieved, and upon examination of the chest the physical signs were found to be such as, whether deceptive or not, appeared to indicate a very considerable amount of re-expansion of the left lung.

Finding this to be the case, I determined to postpone for the present making any free opening, with the hope that the accumulation of fluid being prevented beyond a certain point by frequently repeated tappings, a certain amount of pleural adhesion might take place, and the prospect of closure of the remaining cavity might be the greater.

Unfortunately the accumulation of pus was at times so rapid that distension beyond what had been intended could not be prevented.

On September 27th, nearly 60 oz. of pus were removed, a large proportion of this being obtained by the washing process. Between 9 and 10 pints of carbolic acid solution were used, and for the final washing a solution containing two grains of iodine to the ounce, and made up with glycerine to a specific gravity of 1060.

After this tapping there were evidences of air in the pleura, and these continued to be noted with more or less distinctness afterwards until the time when a free incision was made, and rendered such signs as might be supposed to be given by the lung itself still more uncertain and puzzling.

On October 10th, 114 oz. of pus were withdrawn, that which was first obtained being discoloured from the presence of the iodine of the previous tapping. This time there was an extreme irregularity in the way in which the pus was obtained, the washing being continued for three successive times until the fluid returned was nearly clear, and then suddenly a large proportion of pus being obtained, as if the cavity were more or less separated into compartments by the presence of coagula or partial adhesions preventing the ready movement of fluid.

This irregularity led me to take special note of a defined patch of dulness which was left after the tapping at the base behind, and to surmise that this might be due to a separate collection of fluid.

It would appear that this was so, as upon tapping this part on October 13th, the pus obtained was of a different colour to that of the 10th, being free from the tinge due to the presence of iodine, which had been used both on October 10th and September 27th. The quantity of pus obtained on this day was 26 oz., which was washed out with about four times its volume of carbolic solution.

On October 21st, 44 oz. of pus were removed by the washing process, about 6 pints of carbolic lotion being used, and the final washing being with an iodine solution.

On October 27th, 32 oz. were withdrawn in a similar manner.

On November 3d, 6½ oz. were obtained by a carbolic acid washing, no iodine being used; the completion of the operation was prevented by an accident.

On November 5th, 49 oz. were removed by a carbolic acid washing.

On November 10th, about 25 oz. were withdrawn by washing: the two canulæ were afterwards retained in place for nearly

seventy hours, and for nearly the whole of that time a continuous stream was kept up through the pleural cavity of solutions of carbolic acid and sulphate of zinc.

The patient bore this with very little discomfort, such as there was being caused by the pressure and irritation of the canulæ: he was able to sleep well, had no nausea, and took food well; there was no cough, the pulse was uniformly good, and throughout the time the temperature was slightly above 97° F., having the day previously been 102° F.

The level of the reservoir of fluid was only a few inches above that of the chest, and altogether about 110 pints were transmitted, the temperature being generally between 60° F. and 70° F., but no very special pains were taken to maintain this uniformly, as it had been found on all previous occasions that the entry of fluid at the ordinary temperature of the air had been borne with perfect impunity.

The appearance of the chest after this was remarkably changed, the intercostal spaces of the left side being very markedly drawn in; the whole side from this cause, or even from actual further change, presenting a retracted look. The auscultatory signs, if these could in any degree be trusted, seemed to indicate that there was contact between the costal and pulmonary pleuræ behind to the base and at the apex in front; that there was breathing over these parts of the lung; and that a pleural cavity at the anterior base contained air and fluid. The heart was in its natural position.

It would probably have been the best course now to have made a free opening and kept in a drainage tube.

On November 24th, about 20 oz. of pus were removed, and a continuous irrigating stream of carbolic lotion kept up for nearly twelve hours. This was well borne, and was terminated before it was intended by the accidental displacement of the canulæ.

On December 3d, about 30 ounces were evacuated, and irrigation afterwards continued with carbolic acid and sulphate of zinc solutions for about sixty-four hours. The canulæ on this occasion were probably finally displaced by the action of the patient, as towards the latter part of the time considerable local irritation was set up.

On December 13th, an incision was made in the seventh interspace in the axillary line, and about 20 oz. of pus let out, a drainage tube inserted, and the cavity from that time washed out two or three times daily with solutions of carbolic acid.

On December 16th, the patient presented a very anxious and

distressed appearance ; breathing was short and catchy, the pulse rapid and hard, the temperature above 103° F., and loud pericardial friction sound was heard. He was treated with aconite, and a small blister was applied over the pericardial region, and on the following day was much relieved, and the heart's action had become quiet : friction sound remaining loud for some days. From this time until December 26th the oscillations of temperature were greater than ever previously : after the 26th there was no rise higher than 99° F., and the patient began gradually to gain strength.

At the end of January 1881, the cavity would contain about 10 oz., and the amount of discharge was usually about 3 oz. daily.

On the 24th of February, the patient left the Hospital, the cavity at that time admitting between 6 and 7 oz. of fluid.

As the cavity gradually diminished a more and more marked constriction became formed about $1\frac{1}{2}$ inches from the external opening. If the drainage tube was not passed beyond this, accumulation of pus immediately took place behind it, and it became a constantly increasing difficulty to get the tube through this constriction.

To obviate this difficulty, I got Messrs. Arnold to make for me some fine drainage tubes with closed rounded ends like catheters, and these were found to answer well, being readily inserted by means of a stylet ; they are kept in position by being passed through a short length of elastic tube tight enough to hold them firmly without constricting them, one end of which short piece of tubing is expanded into a flat shield or button-like plate, which lies on the chest wall. No holes are made in the part of the tube outside the chest, and the end is kept in a small bottle suspended to the waist ; the patient is in this way enabled to keep the skin and clothing dry, and to get about with much greater comfort than would otherwise be possible.

The patient continued to wash the cavity out twice or three times daily, and by the end of May it had diminished, so as to hold a little above an ounce, but was a long narrow sinus extending for about six inches from the external orifice in a direction behind the pericardium.

Since then there has been but little change in the condition of this sinus, but the general condition of the patient has remained good.

There is at present (October 1881) a considerably impaired, but by no means absolutely dull, percussion note posteriorly

below the root of the lung; anteriorly dulness, with a cracked-pot sound under the clavicle. There is a very good imitation of feeble vesicular breathing to near the base behind; amphoric breathing and pectoriloquy under the clavicle, with some creaky sounds lower down.

It thus remains a question whether there has been destructive disease at the apex of the left lung and the formation of a cavity there, or whether these physical signs are to be otherwise explained.

The tolerably extended trial made in this case would seem to indicate that when an empyema of this magnitude occurs in a person so far advanced in life, a free opening cannot with benefit be long delayed. On the other hand, the course of the case would seem to indicate that it must be a more or less mistaken idea to believe that final healing is prevented by the difficulty of getting the space filled up. Here somehow or other all is filled up to the last ounce, and it is difficult to believe that this could not have been provided for if only it had been distributed in a different form.

If there had been the opportunity, the first serous effusion should, I think, have been tapped earlier. The first tapping was unsatisfactory, and on this occasion air probably entered the pleura.

The sequel showed that delay on account of the signs indicating disease at the apex was a mistake. In two cases in which, with a serous effusion, there have been similar signs at the apex I have not been deterred from tapping; have found the result good, and have come to the conclusion that either these signs were misleading or that rapid repair took place.

CASE II.

C. D., a boy aged 10, was admitted to Matthew Ward, St. Bartholomew's Hospital, on August 30, 1881.

He had attended a school-treat on August 6th, on which occasion, according to his own account, he had been supplied with a superabundance of beer, and had lain for some time upon damp grass; this was followed by a rigor, and from this time until his admission he had complained of shortness of breath, some cough without expectoration, and occasional pains about the chest.

The patient was a delicate-looking boy of dark complexion; there was said to be phthisis on the father's side.

At the right base, below the level of the nipple, there was complete dulness in front and laterally, with absence of breath

sounds and vocal vibration; the resonance was more or less impaired up to the clavicle, with feeble irregular breathing sounds and indistinct friction; behind, the resonance was impaired in the interscapular region, with feeble tubular breathing, and lower down there was complete dulness and absence of sound.

The breathing over the left lung was exaggerated, with slight catarrhal sounds. The heart's apex was slightly to the left of its normal position; the sounds were natural.

The circumference of the right side at the level of the ensiform cartilage was 13 inches; of the left, 12½ inches.

On September 1st, the pulse was 124, and of small volume. Respirations, 38. Temperature, 101° F.

On September 3d, the patient being under chloroform, two fine canulæ were inserted in the sixth and eighth interspaces in the axillary line, and about 18 oz. of pus withdrawn. Of this quantity, only a small proportion (between 6 and 7 oz.) was obtained at first, the whole of the remainder being brought out by repeated washings. The solution used was a saturated one of salicylic acid at the temperature of about 75° F., and this was continued until it was returned nearly clear; and altogether about nine pints, or ten times the volume of the pus evacuated, were used. So far as could be judged, but little of this was ultimately left in the pleura. The operation was concluded by the injection of about ¼ oz. of tincture of iodine.

There were evidences of fair expansion of the lung immediately after the operation, the resonance in the infraclavicular region being much improved and towards the base, dulness being also much less marked than it had been. Feeble breathing sounds, somewhat tubular in character, were heard to near the base in front and behind, with some irregular friction sounds.

On September 5th, the circumference of the chest at the level of the ensiform cartilage was 12½ inches on each side.

The patient did well in every way, and there was no return of effusion; the apparent contraction of the right side compared with the left became more marked, and *pari passu* with this change the breathing became better.

On September 26th, the measurement of the right side of the chest was 12½ inches; of the left, 13 inches. The temperature had been normal for several days, and there was gain of flesh and strength.

He was able to go to the Convalescent Home on October 14th.

CASE III.

G. A., aged 3, a rickety, unhealthy-looking child; was brought as an out-patient to the Chest Hospital on April 6, 1881.

He had been exposed to cold about three weeks before, after which the mother noticed that he was feverish, that he cried when moved, complained of pain about the chest, became more and more short of breath, and had an occasional catchy cough.

The expression of the patient was anxious, the respiration very rapid, the lips slightly livid, the veins of the neck somewhat distended; the left side of the chest was found to be completely dull in front to above the clavicle, behind there was a faint resonance above; no respiratory sounds were audible over this side, and the heart's impulse was to be felt just below the right nipple.

The patient was at once admitted, and by means of a fine canula and syringe 8 oz. of pus were withdrawn, but no attempt was made on that day to evacuate the whole.

On April 8th, the respirations were above 60, the pulse about 160; measurement of chest at level of ensiform cartilage, $9\frac{1}{4}$ inches right side, $10\frac{1}{2}$ inches left.

In front there was dulness below the nipple; behind the interscapular region was impaired, the base quite dull; breathing sounds absent at the base, tubular above; heart's impulse to be felt in the epigastrium.

Two fine canulae were this day inserted in the sixth and seventh interspaces in the axillary line; but one of these being accidentally displaced, the operation was almost entirely through one, and for this reason the washing out was not so complete as had been intended.

About 11 oz. of pus were removed, and of this rather more than half was by successive washings, first with about $2\frac{1}{2}$ pints of warm water, afterwards with a warm 1 per cent. solution of carbolic acid, of which about a pint was used.

After the operation vesicular breathing appeared to be heard all over, feeble in character near the base; resonance was impaired at the base, elsewhere good. The number of respirations fell to 32.

Two days afterwards there were the signs of commencing reaccumulation of fluid, and these became more and more manifest until April 16th. On that night the patient was extremely restless, had profuse sweating, and the respirations had risen to 64.

On April 17th, two canulæ were inserted in the axillary line, and about 18½ oz. of pus withdrawn, the first 7 or 8 directly, the remainder by successive washings. The fluid was a warm saturated solution of salicylic acid, of which nearly nine pints were used.

During the latter part of the washing, quantities of about 10 oz. were alternately admitted and withdrawn; and as this was done there could be traced gradually increasing dulness and gradual loss of respiratory sound, and then again the gradual return of breathing sounds and fair resonance.

After the operation the respirations were found to be 32.

There was no sign of return of effusion after this, and fair breathing and resonance were established on that side as it began to show retraction compared with the other. On April 23d, the measurement of the right side was 10½ inches; of the left, 10 inches.

On April 24th, the temperature, which had been gradually falling towards normal, suddenly rose to 104° F., and on the 25th he was found to have a well-marked scarlatina rash. On the 26th, he was removed to the London Fever Hospital.

In July the child was again brought by the mother to see me, and was then in the most miserable plight. The belly was swollen, the limbs wasted; there was an abnormally large appetite and constant diarrhoea; there were various irregular râles over both lungs, but, allowing for the retraction of the left, the general character of the breathing was the same on both sides.

So far, then, as the empyema was concerned, the treatment adopted in this case may be regarded as satisfactory in its results.

In Case II., although the patient was an unpromising subject, the result was eminently satisfactory.

In each of these cases it may be noted that success followed the use of a solution of salicylic acid. Whether there be any special virtue in this I do not pretend to say; it was used in preference to carbolic acid from a fear of the dangers to which the latter might give rise.

For the care with which I have been aided in the treatment and observation of these patients I am much indebted to Mr. Dingley and Mr. Barnes, house physicians, and Mr. Irvine, clinical clerk, at St. Bartholomew's Hospital, and to Mr. Jessop, Mr. Batterham, and Mr. Harper, house physicians at the Chest Hospital.



A description of the apparatus used for the above irrigating process in cases of empyema may be fitly coupled with some remarks on the operation of paracentesis in any pleuritic effusion, whether serous or puriform.

It is, of course, of the very first importance to be sure that the canula used is properly placed in position; and yet how frequently does it happen that a large pointed canula, from which no pains have been taken to exclude air, is thrust into an interspace, and afterwards connected by an elastic tube with a bottle from which most of the air has been withdrawn; upon opening the interrupting tap nothing is seen to follow, except perhaps the flow of two or three drops of blood, or the collapse of the flexible tube!

Upon removing the canula it may be found that its orifice is completely blocked, and it remains uncertain whether the fluid was ever really reached or not. Supposing that it was, it is clear that the effect of the air exhaustion was to impact the obstructing plug more firmly into the bore, though this obstruction might perhaps in the first instance have been readily removed by a gentle push in the opposite direction.

Even if there has previously been inserted a fine exploring syringe which has reached the fluid, and care be taken that the larger canula be inserted in exactly the same place, there is no certainty that it will reach the fluid, or at least that it will do so with its opening free.

The risk of this blocking when an open pointed canula is used is no doubt considerably lessened if it be previously carefully filled with fluid, which should be of an antiseptic character; but even thus blocking may arise, and to avoid this, so as to be certain of starting clear, and also for the sake of having the point out of the way during the latter part of the operation, I think the use of a canula and trocar is greatly to be preferred.

The bottle form of aspirator should also, as it appears to me, be entirely discarded, for the following reasons:—

(1.) There is no ready means of judging of the pressure. If the canula be clear, the difference of inside and outside pressure to keep up the flow need be very slight; if the canula be not clear, increase of this difference of pressure is not likely to be effective.

(2.) There are no means of reversing the direction of pressure without disconnecting the apparatus.

(3.) There is no certainty that at certain stages, when a sudden inspiration is taken, air may not pass through the tubes and canula from the bottle into the pleura.

(4.) There is always the temptation towards the end of the operation, as the flow ceases, to attempt to obtain more fluid by

continuing the exhaustion, with a view of thereby, as it were, forcibly causing further expansion of the lung. The effect of such attempt, as it appears to me, can never be beneficial, and is usually harmful. Either the end of the canula may be suddenly jerked against the lung, causing in this way bleeding or injury to the surface; or rupture of the blood-vessels, or of the lung itself, may be caused by the tension.

If in any special case a different arrangement from that described farther on seems to be called for, I much prefer to use a syringe with a double-tap nozzle like a stomach-pump, the tube connecting this with the canula being from the first filled with fluid; with this a coagulum entering and blocking the end of the canula would at once be felt, and would probably be washed back simply by reversing the action of the piston.

It would seem desirable that whatever instrument is used for exploration should be such as may be available for the completion of the operation, so that, when once in good position, no fresh puncture need be necessary.

For exploring only, as in some cases successive trials at different points might have to be made, it would be natural to use quite a fine instrument. On the other hand, for the continuance of the tapping it is necessary that it be of a calibre to transmit fluid with sufficient freedom.

The canulae I prefer to use are of about $\frac{1}{30}$ th inch bore, and these, with the ordinary fall from the bed-level to floor, will transmit from 1 to 4 oz. of fluid per minute.

A small syringe is combined with the trocar and canula, the barrel of the syringe being continuous with the canula, which thus forms its nozzle, and the trocar being screwed to the piston in the direction of the piston-rod prolonged, so that it is drawn backwards at the same time as the piston.

In the first form of this, as made for me by Messrs. Arnold, the glass barrel of the syringe was of considerable diameter, and the connection between it and the canula was by a screw fitting with a tap, through which the trocar passed.

A much simpler form is to make this barrel consist merely of a piece of glass tube ground smooth at both ends, and of the same diameter as those used as inspection tubes inserted in the course of the india-rubber tubing. A short length of india-rubber tubing is tied or fixed by means of a small enveloping cap on to the bulbous end of the canula, and connects it air-tight with the glass tube, over which it slips for a length of about an inch or an inch and a quarter. A steel stilet forms the piston-rod, and a small disc of oiled leather cut from a glove, where this stilet and the trocar are screwed together, forms an efficient piston.

All parts of the instrument as thus made are separable, and easily kept in order. In using it, as the piston is drawn back there is of course no entry of fluid into the glass tube until the trocar leaves the canula, when fluid suddenly makes its appearance. The glass may then be carefully drawn nearly out of the short piece of india-rubber tubing, leaving a sufficient length of this free to be compressed between the finger and thumb or by a clip. While there is this compression, the glass tube may be removed without the danger of the entry of any air.

Supposing that it be found that the fluid is serous, the next step is to insert into the open extremity of this india-rubber tube one end of a short piece of glass tube, the other end of which is slipped into a flexible tube long enough to reach to the floor, taking care that the whole length from where the compression is made is filled with water or some antiseptic fluid.

A convenient way of doing this with certainty is by the bottle arrangement, shown to the right of the figure.

The longer flexible tube has a short length of glass at one end, and the other end passes air-tight through a cork in the neck of a small bottle, to the bottom of which it reaches; a short length of flexible tube, passing also through the cork, opens into the top of the bottle.

The bottle and flexible tubes are completely filled with liquid, and kept ready for use with the open ends of the two tubes held at the same level, and it is then easy to insert the end of the glass tube into the india-rubber tubing attached to the canula without the entrance of even a bubble of air. There is thus a continuity of fluid from the pleura through the canula and tubes to the bottle, interrupted only where compression is made; the bottle being then lowered and the compression removed, flow begins from the end of the tube coming out through the cork.

The advantages of this method are:—

(1.) There is no danger of air-entry at first, and from the first, and uniformly afterwards, the current through the canula is kept up by the weight of a column of liquid from the level of the chest to that of the floor.

(2.) It can always be seen at a glance whether the flow continues; this is especially valuable towards the close of the operation. If there be simply a flexible tube from the canula down to the receiving vessel, and the end of this tube be raised above the surface of the fluid therein in order that it may be seen whether the flow continues, there is always a danger that by a sudden inspiration air may be drawn up through the tube and canula into the pleura.

(3.) If there should at any time be a cessation of flow in consequence of the blocking of the orifice of the canula by the entry into it of coagulum, this can probably be washed back and cleared by raising the bottle above the level of the chest.

I have tapped many cases of serous effusion in this manner, and have found that if the canula be well placed in the first instance, there is never any difficulty in evacuating a quantity of fluid which, if at all less, cannot be very much less than the quantity which would be obtained if more forcible exhaustion were attempted.

No bleeding is ever caused, and the fineness of the canula and the comparative slowness with which the fluid drains away makes the operation one which is borne with but little discomfort. Some that have been treated in this way in the out-patient room have walked home afterwards and done well in every way.

In but few cases of pleuritic effusion—probably in none except those of mere passive dropsical effusion—is it to be supposed that the condition of the lung and pleura is such that it is possible immediately for expansion to take place so completely as to displace all fluid from the pleural cavity; and were this possible, the position of the canula would hardly ever be so exactly right that all would be actually displaced.

No forcible attempt to remove the residual fluid can, I believe, succeed; nor in the case of a serous effusion would there seem anything to be gained by the replacement of this fluid by some other. The absorption of serum is probably a very simple process, scarcely one of pathological repair, and not likely to delay the other necessary reparative changes in the lung, pleura, and chest walls.

It is quite otherwise, however, if the fluid be pus. If pus be left, there is a considerable probability that fresh pus will be formed. Even if absorption commence, this must be a process causing a great amount of constitutional strain, and convalescence must be considerably delayed and impeded beyond what it would be if there were relief from the necessity of this absorption.

Now, although the residual fluid cannot be removed by any forcible exhaustion, it may, as in the above cases, be more or less completely replaced by some other fluid, which it may be hoped may be easily and harmlessly absorbed as the reparative changes go on around it.

To effect this it is only necessary to add to the above-described arrangement a branch leading to the canula from a reservoir of fluid raised above the level of the chest, and to have the means by taps or compressing clips of interrupting the communication of the canula with this reservoir above, or with the reservoir below, as may be required.

I should prefer, instead of thus using one canula, generally to make use of two, for the following reasons:—

- (1.) The time of the operation is thereby diminished.
- (2.) If the canulæ be inserted so far apart as may be justified by the physical signs, the direction and points of entry of the fluid currents are different, and a more intimate mixing, and hence a more complete washing effect, is produced.
- (3.) It is possible, should it seem desirable, to keep up a continuous current through the pleura.

The figure shows the disposition of the tubes when two canulæ are thus used.

The reservoir above is a glass jar, narrow and graduated, so that the downward flow and the quantity of fluid introduced into the chest is readily shown. From the bottom of this a flexible tube passes over the edge down to the level of the bed; it here bifurcates into two short tubes, which again join into one to pass to the bottle on the floor, as already described. In each part of the tube where it is double there are two taps, and from the interval between each of these pairs of taps a branch of flexible tubing, terminating in a short length of glass tube, passes to join the canula.

To prepare this for use, the orifices of the glass tubes must be for the moment closed, and then (the taps being open) suction must be made at the open end of the tube coming from the bottle. Liquid is thus drawn up the flexible tube arching over the edge of the reservoir, and sufficient must then be allowed to flow to completely fill the whole system and displace all air from it,—the branch tubes to the ends of the glasses, and the bottle to the opening of its delivery tube.

All the taps being then closed, all is ready to make connection with the canulæ in the manner already described. To make perfectly sure that there is no air, it is best, at the moment as each glass tube is inserted into the india-rubber on the canula, slightly to turn the tap leading from the reservoir, so that the glass is full to overflowing.

When connection is thus made, there is, except at the four taps, no break in the continuity of fluid throughout the tubes, bottle, reservoir, canulæ, and pleural cavity.

The two taps leading downwards are now opened, and as much fluid as will is allowed to drain out of the chest. When the flow ceases these two taps are closed and the quantity discharged is noted. The two taps leading from the reservoir are then opened and the irrigating fluid allowed to flow in. I have not held it prudent usually to admit more than about two-thirds of the volume of that which has been discharged.

This alternate change of outward and inward current must be continued until it be judged that the pus is washed out as completely as possible. The observation of the appearance and the specific gravity of the discharged fluid gives the means of judging when enough has been done.

Care must be taken that the level of the liquid in the reservoir never falls below the end of the flexible tube. Supposing that a continuous irrigating current is passed through the pleura, in at one canula and out at the other, it would be inconvenient that it should be necessary constantly to watch and refill this reservoir, and a much wider one must therefore be added. But in order to be able at any time readily to observe the rate of influx, it is well to retain the small reservoir and to connect it with the larger one by means of a siphon of flexible tubing; then, if the connection at any time be interrupted by pinching this siphon, the rate of downward flow is easily seen.

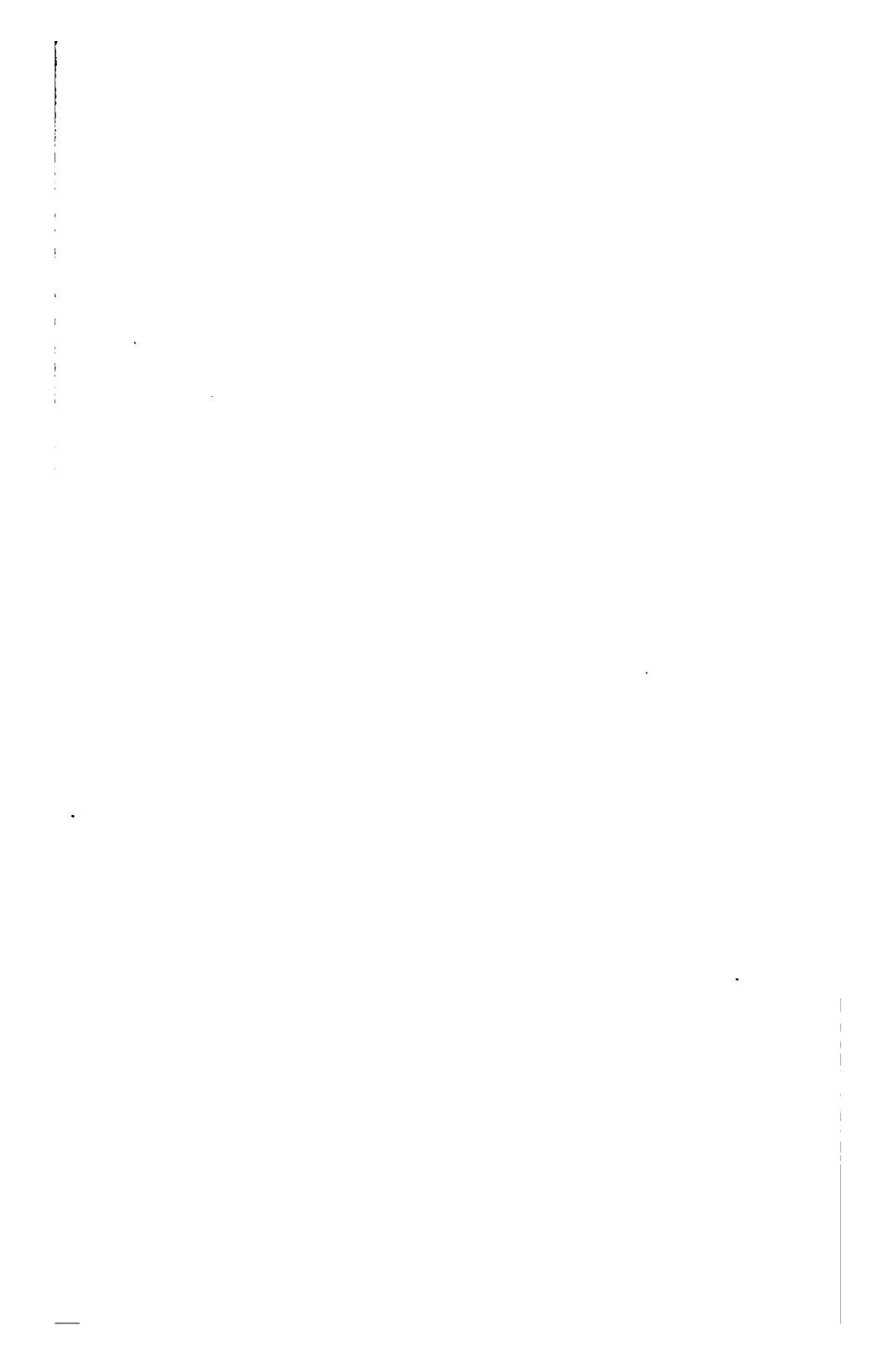
For such a continuous irrigation it is sufficient that the surface of the fluid in the reservoir be at a level eight or ten inches above that of the canulae.

To estimate the quantity of pus which is removed, it is not enough to know the total quantity of fluid which has been delivered at the receiver and the quantity which has been transmitted from the reservoir, since the difference between these two gives the volume of pus less the volume of fluid which is ultimately left in the pleural cavity; observation must also be made of the specific gravity of the solution used, of that of the discharged mixture, and also of that of an unmixed specimen of pus.

It is clear from the method employed this last cannot with certainty be obtained; but since the fluid from the chest enters the bottle at the bottom, it displaces the lighter fluid above it without much mixing, so that if the bottle contains, say two ounces, and after the passage of some three ounces there be the flow of a further volume sufficient for a determination of specific gravity, this must be, without much error, that of unmixed pus.

A pretty accurate estimate of the proportion of pus in the mixture may also be obtained by allowing it, or some of it, to settle in a cylindrical glass jar, provided the diameter of this be not less than about two inches. When the total quantity of pus is known, the quantity of fluid left in the pleura is also known.

It may be noted that in the figure the taps are shown as they would be while a continuous stream is being transmitted. If the two which are shown open were closed and the two shown closed were open, the direction of the current within the pleura would be reversed.



OBSERVATIONS ON TYPHOID FEVER.

BY

W. S. CHURCH, M.D.

The following notes on typhoid fever have been put together from the clinical records of the patients who have been under my care in the wards of the Hospital during the last five years. They do not pretend to treat the subject of typhoid fever and its complications fully or exhaustively, but merely touch on some points of clinical and pathological interest which a consideration of the cases suggested to me.

The number of patients under treatment during this period amounted to 113, of whom 61 were of the male, and 52 of the female sex.

The ages of the patients and the mortality are shown in the following table:—

AGES OF PATIENTS TREATED FOR TYPHOID FEVER.

Under	5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-50	Age not Recorded.	Total.
Numbers Died	9 1	10 1	25 ...	26 6	22 8	13 1	1 ...	2 1	1 ...	4 1	113 19
Males Died	4 ...	6 1	14 ...	13 4	13 6	8 ...	...	1 1	1 ...	1 ...	61 12
Females Died	5 1	4 ...	11 ...	13 2	9 2	5 1	1 ...	1 ...	...	3 1	52 7

Abstracts of the clinical records of a few cases presenting features of more than usual interest are appended, as they seem to be not out of place in these Reports.

On the duration of typhoid fever.—Every year convinces me more and more that typhoid fever not infrequently runs an abortive course, and that many of the cases of *simple* or *ephemeral* fever, especially in children, are due to typhoid fever poison. In a family of four children admitted to my wards the duration of the fever was as follows:—

Leonard O., aged 10,	:	:	:	:	39 days.
Francis J., aged 6,	:	:	:	:	19 "
Flora, aged 3,	:	:	:	:	18 "
Augustine W., aged 9,	:	:	:	:	14 "

In another case in which the fever was contracted in the Hospital it terminated on the 14th day, notwithstanding that the attack was severe and accompanied by delirium. In this case a well-marked crop of rose spots came out on the 6th day.

It is not very often in hospital practice that one is able to ascertain with precision the onset of the fever, but in addition to the above cases, I was able to fix with tolerable certainty the duration of the fever in twenty-six instances.

The accompanying table shows the duration of the fever and the day of maximum temperature in all the cases in which I was able to obtain a satisfactory account of the commencement of the fever.

The number of my cases of typhoid of short duration are so few, and the histories in hospital practice are, as a rule, so imperfect, that I am unable to confirm or refute the dictum of Professor Jürgensen of Tübingen: "A first peculiarity of *typhus levissimus* is its sudden commencement."¹ My own cases do not seem to bear this out. The severity and suddenness of the onset of the fever has not been more marked in the cases of short duration than in those which ran the more usual course. It must, however, be remembered that I have never seen, or, if seen, never recognised as typhoid fever, cases of pyrexia ending on the 4th to the 7th day. Professor Jürgensen thus tabulates his 87 cases of *typhus levissimus*:—

Ended on the	4th to 7th day,	.	16	all	none
"	8th to 10th day,	.	19	all	none
"	11th to 13th day,	.	24	20	4
"	14th to 16th day,	.	28	19	9

In 92 per cent. of these cases Professor Jürgensen² recognised enlargement of the spleen. In every case of typhoid, mild or

¹ German Clinical Lectures, Sydenham Soc. Transactions, second series, 1877, p. 464.

² Op. cit., p. 467.

TABLE SHOWING DATE OF MAXIMUM TEMPERATURE AND THE DURATION OF THE FEVER.

Name.	Age.	Max. imum Temp.	Pulse	Respi.	Day of the Fever on which it occurred.	Day on which the Temper- ature became Normal.	Temp.	Pulse	REMARKS.
1. Leonard Oddi	10	104.5°	...		1st	39th	98°	80	
2. Augustine W. Oddi	9	106°	120	116	4th or 5th	14th or 15th	97.5°	90	From the 10th to the 18th day the temperature remained nearly constant.
3. Francis J. Oddi	6	103°	...		10th	18th	99°	75	
4. Flora Johanna Oddi	3	103.8°	...		10th	18th	98.4°	99	Contracted the fever in the ward whilst convalescent from rheumatism.
5. Margaret Wilson	13	104°	126	34	8th	14th	98.8°	88	The highest temperature observed was on the day of admission.
6. Richard Lummis	10	104°	112	20	9th	19th	98°	56	The temperature was the same on the 4th, 5th, 6th, and 7th days. Fever dated from an attack of vomiting, the first symptom noticed.
7. Thomas Bryant	13	103.5°	116	...	4th to 7th	18th	98.8°	120	Bowels confined all along.
8. Albert Yates	4	103°	140	...	6th	17th	98.8°	120	Died on the 16th day.
9. Emma Styles	23	105.5°	120	...	7th	16th	99.6°	...	Had morning temperature was 98°.
10. Jane South	16	104.5°	100	24	5th	14th	98.6°	96	Had peritonitis of tibia subsequently.
11. William Bainbridge	15	104.4°	110	24	5th	14th	98.6°	96	On the 3rd day his temperature suddenly rose again, and he died with perforation on the 44th day.
12. John Masters	24	104.8°	116	44	14th	24th	98.8°	96	Commenced with severe headache. Admitted on 4th day.
13. Caroline Lucini	12	104°	120	24	4th	16th	99°	...	Admitted on the 7th day with albumen in urine.
14. Jane South	23	103.8°	...		8th	18th	99°	...	A mild case throughout. Highest temperature on 3d day from admission.
15. Susan Newman	38	103.4°	...		7th	19th	99°	...	The date not absolutely certain, as she had been out of health for three weeks; advent of vomiting taken as date of fever.
16. Amelia Smith	23	103.6°	96	...	10th	19th	98.6°	80	Complicated after the 21st day with pleurisy.
17. John Sergeant	20	104°	100	...	9th	{ 45th	98°	88	Contracted the fever in Hospital, whilst residing there to nurse her baby.
18. Emily Humphrys	28	104.5°	104	...	7th or 8th	30th or 31st	98.8°	110	A nurse, contracted the disease in the hospital.
19. Sarah Grace	22	105.3°	126	30	10th	30th	98.6°	108	Admitted probably on the 9th day.
20. Walter Trevillion	11	104°	7	36	11th	29th	98°	72	Contracted the fever in the ward during convalescence from erythema nodosum. Died on the 23d day.
21. Emma Whalley	21	103.6°	126	36	17th	25th	98°	88	No distinct remission of fever after admission on the 7th day. No lung complication.
22. Fanny Turner	26	105°	...		18th	25th	99°	88	Slight bronchitis.
23. Elizabeth Malyon	19	109.6°	160	64	23d	...	...	...	Probably a relapse from the 18th to the 3rd day. Treated by cold bath and sponging.
24. William Bend	21	104.2°	80	...	10th	21st	98°	...	On the 33d day temperature 104.2°, pulse 112. Delirium in relapse as well as in primary fever.
25. John Terrellian	16	104.6°	100	36	13th	...	98°	60	Great daily range of temperature.
26. John Bennett	20	104°	90	...	23d	44th	98.8°	88	Contracted the fever in the ward during convalescence from erythema nodosum. Died on the 23d day.
27. Susan Tyler	21	103.8°	110	...	11th	24th	98°	...	Temperature high from the 13th to 19th day of fever. Died on the 23d day.
28. Charlotte Hardwick	5	105°	130	...	18th	35th	98°	90	No distinct remission of fever after admission on the 7th day.
29. Henry Petre	14	104.2°	102	...	6th	51st	98.2°	90	As in primary fever.
30. Daniel Bowden	2	105.2°	152	...	2d or 3d	11th or 12th	...	...	Great daily range of temperature.

severe, coming under my care during the last few years, the condition of the spleen has been carefully examined, and in a very considerable proportion of them no enlargement of the spleen has been recognisable by palpation. Is it possible that locality may have anything to do with this discrepancy? Could any of Professor Jürgensen's cases have been complicated by coming from a district in which malarial as well as typhoid fever poison existed?

In some remarks on typhoid fever by my colleague Dr. Gee, in the tenth volume of these Reports, he divides typhoid fever into short and long, according as the pyrexial state falls short of or exceeds 21 days, "which day, or thereabouts," he considers critical. The table shows that in 14 cases the fever terminated under 21 days. In the majority, if not in all the cases to which I was unable to fix the exact date of the onset of the fever, its duration exceeded 21 days.

A reference to the same table shows how much commoner it is to have typhoid of the short type among children than among adults, only three adults presenting instances of fever of the short type, and one of these was doubtful. Ninety-four per cent. of Professor Jürgensen's cases of *typhus levissimus* were met with in patients between the ages of 15 to 30, so that in this respect his observations differ from mine, as he says¹ *typhus levissimus* "affects only that period of life which shows the greatest disposition to typhoid in general."

When the pyrexial state lasts beyond the 26th day, Dr. Gee is of opinion that it is due (excepting, of course, those cases in which accidental complications tend to keep up the temperature) to "*progressive ulcerative enteritis or subintrantrant relapse.*" This is probably true in the majority of cases, but I do not think that the disease always runs so short a course.

In two cases fatal on the 23d day, in which there was no relapse, the majority of the ulcers in the ileum had the sloughs still attached to them, and the condition of the bowel was such that I have no doubt that *continuous* typhoid ulceration may proceed without a relapse for a longer period than the 26 or 27 days usually assigned to it. In two cases of more or less constant high temperature for 39 and 45 days respectively, and in several other cases of uncertain duration, but exceeding 40 days, complications such as pneumonia, pleurisy, abscesses, &c., were present, which would account for the prolonged pyrexia without attributing it to continuous ulceration of the bowel.

Temperature.—Opportunities rarely occur in hospital practice

¹ Op. cit., p. 471.

of watching typhoid fever from the commencement, and so testing the accuracy of Wunderlich's¹ formula for the ascent of the temperature during the first four days of the disease. Four cases which commenced in the Hospital bore out the general accuracy of his formula, but I am very doubtful if his statement² that "the maximal height of temperature in uncomplicated cases occurs most frequently as early as the fifth day" is as generally true.

In the four cases contracted in the Hospital the maximum temperature was reached in two on the 10th day, in one on the 8th day, and in the fourth on the 4th, the maximum being the same on the 4th, 5th, and 6th days. In the other 26 cases in which the duration of the fever was accurately known, the highest temperature noted occurred—

On the 2d or 3d day in	.	1	On the 13th day in	.	.	1
" 4th or 5th day in	.	4	" 14th day in	.	.	1
" 7th day in	.	2	" 15th day in	.	.	0
" 8th day in	.	2	" 16th day in	.	.	0
" 9th day in	.	2	" 17th day in	.	.	1
" 10th day in	.	4	" 18th day in	.	.	2
" 11th day in	.	2	" 23d day in	.	.	1
" 12th day in	.	1				

Not counting the case which proved fatal on the 23d day with marked hyperpyrexia; but as only three of these cases came in before the 5th day of the fever, the temperature might perhaps have been higher at an earlier date. In one fatal case, which was of the type called by Dr. Gee "homotonous with anabatic ending," the temperature rose immediately before death, on the 23d day of the fever, to 109.6°.

One of the cases of highest temperature on the 18th day was undoubtedly due to a relapse, the temperature remaining high till the 32d day. In the other case the patient was convalescent on the 25th day, one week after the highest temperature. The case of highest temperature on the 23d day was a remarkable case; there was no distinct remission of fever from the 7th day till after the end of the 4th week, and the fever did not terminate till the 44th day.

Concomitants of the disease.—Sudamina are common enough in typhoid fever, and there can be little doubt that the miliary fever of the older writers was frequently typhoid; still it is rare to meet with them in such quantities as in Case III., where they formed a remarkable feature. They came out in successive crops, commencing about the 20th day of her illness, and covered not

¹ Medical Thermometry, Syd. Soc. Trans., p. 300.

² Op. cit., p. 302.

only the neck, chest, and abdomen, but were also thickly seated on the upper and lower extremities.

Rash.—In Case IV. the eruption was more general and abundant than I have ever seen it. On the 14th day of the fever the whole of the skin of the body and legs was covered so thickly with rose spots (there were none on the face, hands, or feet, and only a few on the arms) as to look at a distance like a general efflorescence. Thousands of spots must have been out at one time. A still more unusual peculiarity in this eruption was, that as the spots faded, they were succeeded by small purpurous patches and spots, which appeared to occupy the same positions as the rose spots had. No purpurous spot appeared on the face, hands, or feet, which had been free from rose spots. In addition to the purpurous spots and small patches, several large ones came out on the thighs. The late Dr. Murchison,¹ in his great experience, seems to have very rarely seen petechiae in connection with typhoid fever, and states that the petechiae are independent of the rose spots. In this case they appeared to follow the rose spots as they faded, and to occupy the same portion of skin.

Head symptoms.—The same Case IV. suffered from very unusual head symptoms. She contracted the fever in the Hospital, and her first symptom was headache with slight pain in the back. The headache increased in severity during the 2d, 3d, 4th, and 5th days of the fever. On the evening of the 5th day her pulse was 118, and temperature 103.2°. On the evening of the 8th day she was very restless and slightly delirious, trying to get out of bed. She was noisy and delirious during the three successive nights, and on the evening of the 12th day of the fever, after being noisy and talkative all day, she was seized with the idea that she had been to heaven and was filled with the Holy Ghost, consequently that there was no need for her to take food. This condition lasted until the afternoon of the 14th day, when she became entranced, lying with her eyes almost closed, legs extended, and her arms crossed over her chest. She appeared quite unconscious, took no notice of what was done to her; even tickling the soles of her feet produced no movement. Whilst in this condition she was fed by passing a tube through her nose into the pharynx, and pouring in half a pint of warm milk and brandy. She took not the slightest notice of this proceeding, neither resisting nor speaking. About an hour after having the milk and brandy she awoke out of her trance-like condition, took nourishment of her own accord, and seemed quite rational. She had no recollection of what had been done to her. During the trance-like state her bowels acted twice under her. Her mental

¹ *Treatise on Continued Fever*, p. 474.

condition gradually improved from this time, but she did not recover her mental balance until the 29th or 30th day of her fever; at the same time her temperature became normal.

In Case VI., a boy aged 9, remarkable nervous symptoms were developed in the course of the third week. Slight nocturnal delirium was followed by gradually increasing stupor, which, on the 19th day of the fever, amounted almost to coma. He could not be roused, and the right arm and leg appeared to be paralysed; the pupils were dilated equally, and acted sluggishly and uncertainly to light. The temperature at the time (evening of the 19th day) was 104° , and pulse 128. This condition of stupor and apparent paralysis of the right arm and leg lasted for eight days, until the 27th day of the fever, when the stupor was less marked, and he put out his tongue when told to do so. On the 40th day of the fever he appeared conscious, and took notice of what was going on around him, and moved his arm and leg when requested to do so. During the whole of this long period of stupor his pulse remained regular though rapid, varying from 120 to 150 per minute, and his temperature ranging from 102° to 105° . It was not until the 54th day of the fever that he spoke except in answer to questions. He continued to pass water and faeces in the bed until after the 69th day of his illness. Eventually he made a perfect recovery.

Constipation.—In a large proportion of the cases occurring during the last two years the bowels have been constipated during the greater part of the time that the fever lasted. A certain amount of constipation during the early period of convalescence appears to me to be the rule after typhoid, and is due quite as much to the care taken to exclude indigestible matters, such as woody fibre, &c., from the diet, as to the atony and general debility of the bowel. So far as my own experience goes, the cases in which the bowels were constipated throughout the fever were in general mild; all recovered without exception. Enemas of water, and, after convalescence was completely established, occasional doses of castor-oil, were the means adopted for giving the patient relief from this symptom.

Tympanitis.—A tense and tympanitic condition of the abdomen has usually been regarded as a most serious symptom. I have, from my own experience, come to regard persistent distension of the abdomen as a most unfavourable symptom; it has scarcely ever been absent from the cases proving fatal. I have not found relief obtainable either by the use of turpentine fomentations or by the insertion of a catheter into the rectum. Sir W. Jenner speaks favourably of the use of charcoal in these cases. The

experience of others is not so favourable, and personally I have shrunk from trying it, as I have more than once heard of fatal haemorrhage occurring immediately after its use.

Hæmorrhage.—Hæmorrhage from the bowels occurred in but few of my cases. I find it noted as present in five instances; of these, two were fatal, but in only one did death appear to be due to the loss of blood. The occurrence of hæmorrhage, *i.e.*, the appearance of blood in anything but the smallest quantities in the stools, seems to me to be always a very grave symptom, and the later it appears in the course of the disease the greater the alarm with which I view it. Absolute rest in the recumbent position and the application of ice-bags to the right side of the abdomen are the measures in which I have most belief for the treatment of this alarming symptom.

Complications.—In Case I. a very unusual complication occurred. Two small abscesses formed in the larynx in connection with necrosis of the arytenoid cartilages, and were the immediate cause of death, which happened about the end of the 4th week of the fever. Louis,¹ in his classical work, expresses surprise at the rarity of ulceration in the larynx, saying, "The rarity of ulceration of the larynx is the more remarkable since ulcerations are frequently met with round that organ, at the epiglottis, in the pharynx and œsophagus." He, however, describes a case not unlike the present, where he found an ulceration embracing the anterior half of the left superior vocal cord, which formed the orifice of a pyramidal excavation reaching down to the left arytenoid cartilage. Rousseau,² also, has drawn attention to necrosis of the cartilages of the larynx in connection with typhoid fever. In the first case he mentions, which occurred in the practice of his colleague, M. le docteur Bergeron, the mucous membrane just behind the ventricles was gangrenous, the arytenoid cartilages entirely destroyed, and the inferior constrictor muscles of the pharynx sphacelated. In the second, the patient had suffered before his typhoid fever from hoarseness and other laryngeal symptoms, and on convalescence from the fever his laryngeal trouble increased; an abscess formed in connection with the sterno- and crico-thyroid muscles, and half the cricoid cartilage on the left side had disappeared. In the third, the arytenoid cartilage was found exposed, though apparently not necrosed, at the base of a slight ulceration. In all these cases there was inflammation about the parts, whilst in the present case, with the exception of the loss of voice, no

¹ Louis, *Recherches sur la Maladie connue sous les Noms de Gastro-enterite, &c.* Paris, 1829.

² Rousseau, *Clinique Médicale.* Paris, 1861, vol. i. p. 200 *et seq.*

symptoms existed until dyspnoea set in shortly before death. Dr. Wilks¹ has recorded a case very similar to the present. A young man, aged 23, admitted into Guy's Hospital under Dr. Addison, died from typhoid fever with pneumonia, and with no symptoms referrible to the larynx. After death a small brown slough was found close to the posterior attachment of the vocal cords; by opening this two small cavities were found, each capable of holding a pea. The arytaenoid cartilage was exposed. Dr. Wilks² has also recorded another case in which an ulcer at the back of the larynx, near the junction of the vocal cords, had given rise to general emphysema of the neck. It seems probable, therefore, that the cases of general emphysema mentioned by Chomel,³ and occasionally observed by others in typhoid fever, are due to the ulcerations of the larynx. I have examined the cases of typhoid fever in our post-mortem reports for a good many years, and find no other case of necrosis of the cartilages of the larynx besides the present noted as occurring. My own observation in fatal cases of typhoid fever would also bear out Dr. Murchison's⁴ opinion that ulceration of the mucous membrane of the trachea and larynx is a rarer complication of the disease in this country than on the Continent. At a recent meeting, April 24, 1880, of the Pathological Society, when the specimen was shown by Mr. Eve, then curator of our Museum, Dr. Greenfield spoke of these cases of abscess in and about the larynx as "quite common," and Dr. Goodhart had seen four cases in two years. They may be quite common, but the above is the only case met with in thirteen years at St. Bartholomew's Hospital. During the same period two cases of extensive ulceration of the mucous membrane of the larynx and one of the epiglottis have been found in typhoid.

In the Museum of St. Bartholomew's Hospital there is a precisely similar specimen obtained from a fatal case of variola.

Sequelæ.—Among the sequelæ of typhoid fever of not very uncommon occurrence is phlebitis, most frequently occurring in the veins of the legs. In one case, in which the fever was very long and protracted, pain in the calf and œdema of the foot and ankle began on the 55th day; both legs became affected and caused considerable discomfort during convalescence, preventing the patient getting up until the 69th day. In another instance, pain in the feet was complained of as early as the beginning of

¹ Trans. Path. Soc., vol. xi. p. 14.

² Op. cit., p. 34.

³ Chomel, *Leçons de Clinique Médicale. Le Fièvre Typhoïde.* Paris, 1834.

⁴ *Treatise on Continued Fevers.* London, 1862, p. 504.

the fourth week, whilst rose spots were still coming out and before the deservescence of the pyrexia. The pain in the feet was complained of during the remainder of the fever and the early part of the convalescence, but at no time was any tenderness, redness, or oedema noticed about the legs or feet. A man, aged 48, had a pain in the right thigh during the third week of his fever; the pain persisted and increased in severity during his convalescence, and moved from the thigh to the neighbourhood of the sacro-iliac synchondrosis. The pain was very severe, necessitating frequent subcutaneous injections of morphia, and led me to fear that serious mischief was taking place in or about the articulation. No cause for the pain was discovered, and as his convalescence progressed it abated; eventually he left the Hospital free from pain and with no weakness of the leg remaining. I have heard of several similar cases of pain about the pelvis without discoverable cause occurring during convalescence.

Abscesses.—In one very severe and protracted case of fever, in a girl aged 17, convalescence was much retarded by the formation of numerous small abscesses in the subcutaneous tissues and in the axillary glands. She had in all eight small abscesses occurring in the arms and axillary glands, and one larger abscess in the thigh, which was some time in healing. Another troublesome case of abscess occurred in a boy aged 13, who was admitted with a very severe attack of typhoid fever, during the course of which he had severe intestinal haemorrhage. At the time of admission he had an old unhealthy-looking sore on the outer side of the left elbow. During the fever this sore inflamed and was for a long time very unhealthy-looking; during convalescence the sore healed nicely, but a large abscess formed in the arm above, and some of the axillary glands suppurred. I believe that these abscesses, which are not uncommon during the convalescence of typhoid fever, most frequently originate in extravasations of blood into the muscles. I have known one case where an abscess formed during the end of the 3d and beginning of the 4th week of the fever, which, when opened, gave exit to a quantity of blood-clot and blood mixed with pus.

Ecthyma.—A boy, aged 13, had a rather slow convalescence from a moderately severe attack of typhoid lasting eighteen days. A month after the commencement of convalescence, just as he was about to leave the Hospital, ecthymatous bullæ formed at the tips of his fingers and thumbs, not one escaping. He had no bullæ or pustules anywhere else. The fingers rapidly healed after puncturing the bullæ and letting their contents escape, and he left the Hospital quite well eight days after they first began to form.

In the twelfth volume of these Reports is a very interesting paper by Sir James Paget on some of the sequelæ of typhoid fever; he draws attention to the periostitis, sometimes leading to necrosis of bone, which follows typhoid. The commonest seat for the periostitis is the tibia. Among my cases I had one instance of periostitis of the tibia (Case VII.), but fortunately not followed by necrosis. In hospital practice patients are lost sight of, and it is therefore impossible to say how many may suffer from some of the ills mentioned by Sir James Paget. I had, however, some years ago, a very troublesome case of eczema, occurring on the leg of a young woman, who many years before had had typhoid fever, followed by swelling, lasting for a long time, of the same leg. Although the phlebitis had occurred whilst she was a child, the affected leg remained larger than the other, and the foot was more prone to become cold than the other; there was no varicosity of the veins.

Scarlet fever.—In one case (IX.) scarlet fever and typhoid went on concurrently. The woman was admitted early in the fever; the aspect of the throat made me suspect that she might be going to have diphtheria. The scarlatinal rash had probably faded before admission, but the desquamation was very pronounced.

Nocturnal incontinence of urine.—A girl, aged 16, who had all her life had nocturnal incontinence of urine, appeared to be temporarily, at all events, cured by an attack of typhoid fever. The attack was a severe one; during the first ten days of her stay in the Hospital the temperature ran up to 104; during the fever both faeces and urine were constantly passed in the bed, and during the early portion of her convalescence she wetted her bed nightly. When convalescence was fairly established she took for one week a quarter grain of extract of belladonna every night, and during and after that time she did not wet her bed again. Rousseau¹ relates a case of nocturnal incontinence of urine in a young girl, whom he treated fruitlessly for eighteen months, and who subsequently had an attack of typhoid fever; during convalescence from the fever she passed twenty-four consecutive nights without wetting her bed, but the habit afterwards returned. I have been unable to trace the girl after she left the Hospital, so I am unable to say that the cure was permanent.

Treatment.—I have little or nothing to say on the treatment adopted; it has been mainly expectant. I prefer to rely on the good effects of nursing and dieting rather than on the adminis-

¹ Clinical Medicine, Sydenham Soc. Trans., vol. iii. p. 405.

tration of drugs, which, if used in sufficient quantities to have any appreciable effect, are, in my opinion, apt to prove double-edged weapons in typhoid fever.

The majority of the patients have taken an acid draught containing hydrochloric acid; I give this in hopes that the digestion of food is thereby assisted. Experiments on dogs¹ have shown that the activity of the gastric secretions is very much impaired in the pyrexia produced by septic influences, and that the addition of hydrochloric acid restores their normal activity. It seems to me probable that a similar condition of the gastric secretions holds good in typhoid; moreover, the hydrochloric acid draught is usually grateful to the palate of the patients. Quinine as an antipyretic has not answered my expectations, and I but seldom make use of it during the period of fever. Salicylate of soda has, in the cases in which I have used it in large enough doses to lower the temperature, produced so much depression—in some instances such alarming depression—that I have given up its administration in typhoid fever. I have no personal experience of the exhibition of digitalis or aconite in this disease. Failure of the heart's action and lung complications are treated with alcoholic stimulants rather than drugs, occasionally using aether and ammonia as well. Stimulants, except under the above circumstances, are given very sparingly; the majority of the cases of typhoid in children and young persons have been treated without any stimulant whatever during the fever, a daily glass or two of wine being in most instances given during convalescence.

If the diarrhoea is very urgent and threatens to exhaust the patient, starch and opium enemata are used; in such cases, if there is as well an unusual amount of tenderness on pressure over the abdomen or complaints of pain in the belly, small and frequent doses of opium in the form of liquid extract are given by the mouth. Opium was also used occasionally to procure sleep, but more frequently chloral or chloral and bromide of potassium together were administered.

Cold bathing.—Although I have made pretty frequent use of the cold bath, I do not feel sure of the propriety of using it as a routine instrument for typhoid after the manner of Dr. Brand of Stettin, Professor Liebermeister, and others, as recommended by Dr. Cayley in his Croonian Lectures. Amongst hospital patients the aversion to, I might almost say horror of, bathing is often so great that I hesitate to repeat the bath unless the patients themselves desire it, excepting of course in those cases where an unusually high temperature or symptoms of stupor demand heroic treatment. The difficulty, which applies to all

¹ Manassein, *vide* Dr. Cayley, Croonian Lectures, March 1880.

statistics, of estimating the probability of the circumstances under which they were compiled being identical with those with which you yourself are dealing, applies with increased weight to the statistics of foreign observers, and I must confess that foreign statistics have but little weight with me. Dr. Cayley's own statistics are, however, very satisfactory. He claims to have reduced the mortality of the severe cases to the level of the average mortality of the disease at the London Fever Hospital. The mortality at St. Bartholomew's very closely corresponds with that of the London Fever Hospital, and has not become less during the few years in which cold baths have been more or less in use there. Dr. Alexander Collie,¹ at the Homerton Fever Hospital, came to the conclusion that cold bathing had no effect on the mortality there; but the number of cases in which he had used the bath is not sufficiently large for any reliable deduction to be drawn from them. Another point which renders it necessary to be careful in forming any opinion from a comparison of statistics taken from a limited period is the remarkable fluctuation in the rate of mortality from typhoid in different years. Taking our own statistics at St. Bartholomew's Hospital, the death-rate has varied in the last twenty years from 5.88 per cent. in 1860 to 31.11 per cent. in 1869; the mortality for the whole period of twenty years being 15.72 per cent., a mortality somewhat less than that given by Dr. Murchison for the Fever Hospital for the fifteen years from 1848 to 1862.²

To give every patient a cold bath as often as the temperature rises to 102° appears to me a most unnecessary amount of fatigue both to the patients and their attendants. I have no statistics on the subject, but I should think the mortality from typhoid in cases where the temperature does not reach above 102° is extremely small, and if to these be added all the cases of pyrexia, which may be classed as Professor Jürgensen's "typhus levissimus," I can conceive that very favourable statistics might be obtained for any form of treatment not directly hurtful.

During the last four years I have used the cold bath on adults whenever the temperature has remained for twenty-four hours or so persistently over or about 104°, and have repeated the bath three times in the twenty-four hours, but not oftener. The utility of cold bathing in cases of extremely high temperature is well illustrated by Case I. On the other hand, little or no benefit was obtained from its use in Case VIII. Cold sponging, which is almost invariably grateful to the feelings of the patient, is constantly used, though it appears to me to have but a transient effect on the temperature. All my patients are kept very lightly covered with bedclothes.

¹ Brit. Med. Journal, Sept. 20, 1879.

² Continued Fevers, p. 529.

Observations on Typhoid Fever.

Mortality.—Of the 113 cases treated in my wards, from which these notes are compiled, 61 were of the male, 52 of the female sex. The disease terminated fatally in 19, or 16.81 per cent.

TABLE OF FATAL CASES.

No.	Name.	Age.		Remarks.
1.	Benjamin Bond .	17	P.M.	oiii. of fluid effusion in left pleura.
2.	Clarence Strudwick	20	P.M.	Old renal disease. Large white kidneys.
3.	Arthur Trundle .	?	...	Ulceration of bowels in an early stage.
4.	John Goldsmith .	9	P.M.	Had very severe diarrhoea, and died with symptoms of perforation of bowel.
5.	Samuel Staples .	21	P.M.	Peritonitis. Perforation had all but occurred.
6.	John Trevallion .	16	P.M.	Sloughing and destruction of vermiciform appendage. Peritonitis. Next door to perforation in many places.
7.	Edwin Temple .	21	P.M.	Died with severe head symptoms, coma, &c. Ulceration in an early stage.
8.	George Mitchell .	38	P.M.	Perforation and peritonitis.
9.	Thomas Atkins .	20		Exceedingly high temperature.
10.	John Masters .	24	P.M.	Death from haemorrhage. Had pneumonia also.
11.	Alfred Bursell .	22	..	Perforation of bowel on the 42d day.
12.	Thomas Heartwell	16	P.M.	Continuous high temperature; death on 26th day.
13.	Anne Hall . . .	23	...	Contracted the fever in ward; died on the 10th day. He had most extensive cardio disease, for which he had been admitted, and from which he really died.
14.	Elizabeth Malyon	19	P.M.	Bronchitis when admitted, and albuminuria. Died with pneumonia and failing heart on 23d or 24th day.
15.	Eliza Trebble . .	27	P.M.	Died with abscesses round necrosed arytenoid cartilages. Ulcers in bowel nearly healed.
16.	Mary Anne Connor	?	...	Death from haemorrhage.
17.	Emma Styles . .	23	P.M.	Ulceration commenced unusually high in the bowel.
18.	Emma Boyce . .	15	...	Died from bronchitis during the fog of January 1880, when convalescent from the fever.
19.	Eliza Alice Nind .	3	P.M.	Died directly after admission before I saw her.

The preponderance of fatal cases among the males is noteworthy, and affords another example of the extreme care which should be used in drawing conclusions from limited statistics. I was inclined to believe that it was due to the men not taking as much care of themselves in the early stages of the disease as the women, but on examining into the matter more fully, I find that the death-rate at the Hospital during the last eleven years has been slightly higher for females than for males, being 16.94

per cent. for the former, and 16.12 for the latter—figures which very closely correspond with those given by Dr. Murchison for the Fever Hospital. He also quotes several foreign observers whose statistics on this point agree with his.

In Nos. 9 and 16 haemorrhage from the bowels appeared to be the actual cause of death; profuse haemorrhage occurred in No. 12 a few days before death, but the boy's general condition and the severe heart disease he had so long suffered from rendered it almost impossible that he should withstand an attack of acute disease. Slight haemorrhage occurred in one or two of the other fatal cases, but not in sufficient amount to have had any effect on the course of the fever.

Nos. 8 and 14 may both be considered as instances of death from high temperature, though in No. 8 the temperature did not rise at the time of death. The existence of typhoid was not suspected in No. 2 until revealed at the post-mortem examination. He was admitted in a depressed condition, and died after being a few days in the Hospital.

Nos. 1 and 13 died in consequence of thoracic complication, pleurisy with effusion in No. 1, and general bronchitis with pneumonia in No. 13. Pneumonia was also present in No. 9, whose immediate cause of death was haemorrhage. No. 18 when convalescent from the fever died of bronchitis, being slowly asphyxiated by the persistent fogs of January 1880.

No. 6 died early in the fever, apparently overwhelmed by the fever poison itself. His temperature, though high, was never excessive. No albumen was present in his urine, and nothing was discovered after death to account for his comatose state. His condition, excepting that no paralysis of any limb was observed, closely resembled that described in Case VI., which recovered.

The condition of the larynx and lungs was the immediate cause of death in No. 15.

Nos. 11 and 17, and probably 19, died from asthenia.

In No. 4 peritonitis without perforation of the bowel occurred, but the coats of the ileum were all but perforated by the ulcers in several places.

No post-mortem could be obtained in No. 3, but the symptoms left no doubt that perforation had occurred; and in Nos. 5, 7, 10, perforation of the bowel and consequent peritonitis were found after death.

The mortality may be tabulated as follows:—

8 without complications dependent on the fever.

6 without any complications, Nos. 6, 8, 14, 11, 17, 19.

2, one with old renal, No. 2, and one, No. 12, with old heart disease.

- 11 with complications dependent on the fever.
- 2 from haemorrhage, Nos. 9 and 16.
- 4 from complications connected with the respiratory system, Nos. 1, 13, 15, 18.
- 1 from peritonitis without perforation, No. 4.
- 4 from peritonitis with perforation, Nos. 3, 5, 7, 10.

It will be observed that all the cases of perforation occur among the males, and the greater frequency of this fatal termination among men has been long noted.

I have looked through the post-mortem examinations made at the Hospital during the last thirteen years, and find recorded 98 cases of typhoid fever. In 21 perforation had occurred—a much larger proportion than that given by Dr. Murchison. This may partly be accounted for by the greater interest attaching to cases of supposed perforation, and to the efforts made to secure post-mortem examinations in these cases. Of the 21 instances of perforation, five only occurred in women, although, as I have before said, the mortality at the Hospital among the female patients is slightly greater than that of the male.

The number of post-mortem examinations, however, as the following table shows, is larger among the males than among the females.

TABLE of POST-MORTEM EXAMINATIONS in TYPHOID FEVER, showing the Number of Cases of Perforation and Peritonitis, and the Age at which Death Occurred.

	Perforation and Peritonitis.		Peritonitis, no Perforation.		Total No. of P.M. Exams.		Totals.
	M.	F.	M.	F.	M.	F.	
Under 5	1	1
" 5-10	1	...	5	8	5
" 10-15	1	5	8	13
" 15-20	.	3	2	1	9	10	19
" 20-25	.	7	2	3	20	10	30
" 25-30	.	1	...	...	3	5	8
" 30-35	.	3	1	2	8	1	9
" 35-40	4	3	7
" 40-45	.	1	...	...	1	1	2
" 45-50	.	1	...	...	1	...	1
Age unrecorded	2	1	3
	16	5	7	3	58	40	98
Totals	.	21	10	98			

I am unaware of any explanation having ever been offered for the greater frequency of perforation in the male sex. There can, I think, be no doubt that it is a clinical fact, as it is borne out by the statistics of all observers.

The lesion occurs, though very rarely, in children under puberty; the youngest instances recorded in the Hospital post-mortem books were two boys aged 16.

An analysis of the 98 post-mortems tabulated above yields the following interesting results:—

- In 33. No special complication is noticed as present; it may be concluded that they died from the fever rather than from any of its complications.
,, 3. Death occurred before there was any ulceration of Peyer's patches.
,, 23. The respiratory organs were noted as affected.
In 10. Pneumonia of one or both lungs.
,, 2. Pleurisy with serous effusion.
,, 1. Pleurisy with empyæma.
,, 3. Emphysema with œdema.
,, 4. Congestion and œdema of lungs.
,, 1. Abscesses round arytaenoid cartilages.
,, 2. Ulceration of larynx.
,, 1. With diphtheria of pharynx.
,, 1. With ulceration of the epiglottis.
,, 1. Had general tuberculosis as well.
,, 3. Had the intestines filled with blood.
,, 2. Are noted as probably dying exhausted by bed sores.
,, 1. Had old renal disease.
,, 2. Had advanced heart disease.
,, 1. Had general amyloid degeneration of viscera.
,, 10. Peritonitis without perforation was present, and was the immediate cause of death.
In 1. From past typhoid leading to obstruction and sloughing of the bowel, complicated with pyæmic abscesses.
,, 6. The bowel was almost perforated in one or more places, and the threatened perforation had obviously been the cause of peritonitis.
,, 1. Ulceration and extensive sloughing of the large intestines.
,, 21. Actual perforation of the bowel was found.

The seat of the perforation was in most instances only a few inches above the valve, but in one case it was situated
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as high as 3 feet, in another 21 inches, and in a third 15 inches above the ileo-cæcal valve. The vermiciform appendix had been the seat of sloughing and perforation in three instances.

ABSTRACTS FROM THE CLINICAL NOTES OF NINE CASES OF TYPHOID FEVER.

CASE I.—*Unusually High Temperature—Cold Baths—Abscesses in the Larynx consequent on Necrosis of the Arytenoid Cartilages.*

Eliza T., aged 27, admitted into Elizabeth Ward, July 28, 1876.

History.—Housemaid in a gentleman's family. Five weeks ago she felt out of sorts, but was able to do her work until a week before admission, when she took to her bed, complaining of headache and sickness; has been very sick every day during the last week; looseness of the bowels the day before admission.

Scattered over the abdomen were numerous typhoid spots, but no tenderness in the iliac fossæ; a feeble gurgle felt in the right iliac fossa. Pulse, 120. Respiration, 16. Temperature, 103.6°; at 10 P.M. on the same evening 104.2°. She went on fairly well until August 2. At the time of my visit on that day she expressed herself as feeling better, but her pulse was 148, respiration 44, temperature 105°. At 4 P.M. her temperature had risen to 108°. She was placed in a bath at 95°, cooled rapidly to 75°, and was kept in it for twenty minutes; by that time the temperature in her mouth had fallen to 100.4°. The daily progress of the case can be seen from a glance at the accompanying table of temperatures, &c.

The cold bath was always grateful to her feelings and relieved her very much. The effect of the first bath was to reduce the temperature from 108° to 100.4°; after the bath the temperature gradually rose to 104.4°. The bath was repeated the next day, as her temperature had risen to 104.4°, and her pulse 146. In three hours' time her temperature had again reached 105°, and her pulse was even more rapid (162), and she was again placed in the bath for fifteen minutes. By midnight on the same day the temperature had again risen to 105° and the pulse to 160, and she was for the third time that day placed in

TABLE OF TEMPERATURES, &c.

Day of Month.	Hour.	Temp.	Pulse.	Resp.	Remarks.
July. 28.	...	103.6°	120	16	
	10 P.M.	104.2°	114	26	
	29. 12.45 A.M.	104.2°	112	26	
	A.M.	102.6°	124	22	
	P.M.	103.4°	126	20	
	30. A.M.	103°	128	...	
	P.M.	103.3°	126	30	
	31. A.M.	103.6°	140	...	
	P.M.	105.2°	120	34	
Aug. 1.	A.M.	104.5°	148	36	
	P.M.	103.4°	136	34	
	2. A.M.	103°	148	44	
	4 P.M.	103°	166	50	Bathed at 4.45; bath 90° to 75°; kept in 20 minutes; temperature in bath 100.4°.
	5.15 P.M.	101.4°	148	34	Bowels acted once.
	5.30 P.M.	100.8°			
	7 P.M.	104.4°	158	42	Bowels open again. Feels sleepy.
	8.15 P.M.	104.2°	150	40	Has had some sleep. 10 P.M. sleeping.
	midnight	102.4°			Still sleeping.
	3. 9.30 A.M.	102.2°	138	34	Has had a fair night.
	3.45 P.M.	104.4°			
	5 P.M. .	104.4°	146	46	Put into a bath at 85°, and kept in 20 minutes, whilst it was reduced to 75°.
	8.30 P.M.	105°	162	42	Again bathed for 15 minutes.
	midnight	105°	160	42	Put into a bath again, cooled from 80° to 66°; kept in 15 minutes; ice to the head.
	After bath	101.5°	132	36	
	4. A.M.	102.6°	136	42	Has had two hours' good sleep; wandered slightly.
5.	1.30 P.M.	104.8°	162	50	At 2 P.M. put into a bath 85° to 70°; kept in 23 minutes.
	2.45 P.M.	99°	132	40	
	4 P.M.	104.4°	160	50	
	6.30 P.M.	104.2°	154	44	Rose spots and sudamina very abundant.
	8.30 P.M.	104.2°	150	44	
	11.15 P.M.	104.6°	150	40	
	noon.	104.4°	150	40	Had had a fair night.]
	4.40 P.M.	103.6°	150	42	
	7 P.M.	104.4°	144	44	
	10 P.M.	103.8°	144	44	Bowels open six times during day.
6.	A.M. 8	102.2°	146	44	Had three hours continuous sleep; large numbers of rose spots.
	1.30 P.M.	102.6°	144	44	
	3 P.M.	103.2°			
	8.30 P.M.	104°	...	...	B.O. ii., passed under her.
	9.30 P.M.	103.4°	152	44	
	11.30 P.M.	103.4°	148	40	

TABLE OF TEMPERATURES, &c.—continued.

Day of Month.	Hour.	Temp.	Pulse.	Resp.	Remarks.
Aug. 7.	A.M.	102.8°	148	36	A bad night; no sleep; delirious.
	7 P.M.	...	...	...	Soundly sleeping; has been asleep 3 hours.
8.	10 P.M.	103.8°	150	40	Still sleeping; B.O. iii.
	11 A.M.	104.4°	150	46	Slept well; is sleeping still; bowels not open.
	4.45 P.M.	104.2°			
	8 P.M.	104.4°			
	9.45 P.M.	103.4°	152	48	Has slept 3 hours this afternoon; subcutaneous tendinitum.
9.	10.45 A.M.	103.8°	148	44	Bowels open twice; slept fairly well.
	7 P.M.	104.6°	150	50	
10.	10 A.M.	102°	150	40	Little sleep, but no delirium; B.O. i.
	4 P.M.	102.6°			
11.	A.M.	101.4°	130	...	4½ hours' continuous sleep; B.O. i.
	3.15 P.M.	102.4°	152	...	Her voice is husky, but she complains of no pain.
12.	10.30 P.M.	103°	150	...	Slept 2½ hours in afternoon.
	A.M.	101.6°	140	...	Slept 3 hours in night; B.O. i.; can speak more distinctly.
13.	10 P.M.	102.2°	...	...	Is comfortable and inclined to sleep.
	12.45 A.M.	...	...	...	Has been sleeping; roused for food.
	2.30 A.M.	...	...	...	Sleeping since last note.
	noon	...	148	...	B.O. i.
	1.30 P.M.	102.3°	128	40	Throat feels sore.
	8.45 P.M.	102°	...	...	Breath very short; feels choking.
	Midnight	99.2°	150	40	Dyspnoea severe.

the bath, which was rapidly cooled to 66°. After this bath the temperature fell to 101.5°, and the pulse to 132. She had two hours' continuous sleep during the night, and expressed herself as feeling very comfortable. The next day, at 1.30 P.M., the temperature had again risen to 104.8° and the pulse 162, and she was again placed in the bath. Soon after removal from it she fell asleep and slept for 1½ hours, during which time her bowels acted under her. At 8.30 P.M. she had a little shivering, which a cup of warm milk and brandy stopped, and she passed a fairly comfortable night.

Although from this date, August 4, she had a little cough, nothing was discovered amiss with her lungs, and no complaint of sore throat was made, and she appeared to be progressing fairly well until August 11, when I first noticed a huskiness of her voice. As she made no complaint of pain about the larynx, and there was no hurry of breathing, I thought little of it. On the 12th she had no pain on swallowing, and her voice was if

anything better than on the 11th. It was not until the 13th that she had any pain in her throat or any real dyspncea. She died somewhat suddenly on the 14th.

At the post-mortem examination—

The condition of the larynx has already been sufficiently described, p. 102. The lungs were slightly oedematous. No peritonitis. Liver pale and fatty-looking. Spleen small and soft. Kidneys pale, otherwise natural. The lower part of the ileum filled with ulcers, nearly all quite free of the slough, and most of them healing ; some almost completely healed.

CASE II.—*Erythema Nodosum—Recovery—Fever Contracted in the Ward—Continuous High Temperature—Death on the 24th Day.*

Elizabeth M., ast. 19. Admitted with an ordinary attack of erythema nodosum, which first appeared on the legs, and afterwards was scattered over both legs and arms.

August 15.—The note says : The lumps have quite gone from both legs and arms, only dusky red patches left in their site. She continued to convalesce satisfactorily, and was to have left the Hospital on August 27, but she complained of pain down the right leg and in the ankle, and of feeling chilly. The next day, 28th, she still felt chilly, but had no rigors ; the skin over the trunk and arms very much injected. Tongue clean and red ; no sore throat. Pulse, 130. Respiration, 20. Temperature, 102.4°.

August 30.—Much headache. Some iliac tenderness. Skin still injected. No diarrhoea. Pulse, 94. Respiration, 25. Temperature, 104.4°. From this date the temperature remained very high, ranging for the next eleven days from 103° to 104.4°, and not being affected by twenty-grain doses of salicylate of soda every three hours, which was tried for twenty-hours on the 31st, or by twenty-grain doses of quinine given once in the twenty-four hours.

September 3.—Characteristic rose spots appeared on the chest, and continued to come out until September 10. Diarrhoea commenced on September 2, and continued urgent during the remainder of her life. Delirium first set in on the night of the 6th, and she was more or less delirious during the rest of her illness. The skin over the right shoulder-blade became excoriated on September 11.

September 12.—The temperature rather lower, varying from this date till the 17th between 104° and 100°.

On the 18th she was very weak. Much sordes on teeth; unable to put out her tongue.

	Temperature.	Pulse.	Respiration.
At 6 P.M.	105.8°	160	52
10.30 P.M.	107°	160	64
midnight.	107.2°	160	58
2 A.M.	108°	...	...
4 A.M.	109.5°	...	...

And death occurred shortly after 4 A.M.

Post-mortem appearances.—Body wasted. Lungs congested; lower lobes collapsed. Heart flabby. Liver much decomposed. Spleen large and very soft. Stomach natural. Four feet above the valve Peyer's patches begin to be diseased; they are swollen, ulcerated, or sloughing; one small ulcer the size of a pea below the valve.

Remarks.—This case was one of those termed by my colleague Dr. Gee "homotonus with anabatic ending." From the 5th to the 19th day of her illness her temperature was only twice found below 103°, and the difference of temperature during any one day very seldom exceeded one degree. The frequency of her pulse also remained nearly the same until the day of her death, being 116 on the 3d day of her illness, and 124 on the 18th. Neither salicylate of soda in twenty-grain doses frequently repeated, nor quinine in twenty-grain doses given once during the twenty-four hours, appeared to have any effect on her temperature or pulse; but during the period that she was taking these drugs she frequently vomited.

CASE III.—Prolonged Fever with Abundant Crops of Sudamina—Recovery.

Emily H., aged 28, had been admitted to Stanley in order to nurse her baby, who was a patient in the ward. The mother was in good health on her admission, and did not attract the notice of the house surgeon until February 7, when she complained of not having felt well for several days, and that her milk had diminished. He elicited that she had felt very cold and been unable to get warm on the 4th and 5th. On the 7th, the day when she first attracted the house surgeon's attention, her tongue was furred; her bowels had been much relaxed on the previous day (the 6th). In the evening she fainted, and had a temperature of 103.4°, her pulse being 112 and feeble.

On the 8th I first saw her. She was feeling better and had slept fairly during the night. She had a little backache. No rash of any sort could be seen on her skin. Total suppression

of milk. Her morning temperature was 102.6° . Pulse, 100. In the evening her temperature rose to 104.5° , and her pulse 104.

On the 9th she had passed a fair night. Less backache. Tongue generally covered with white fur. Bowels not open since the 6th. Temperature, 104.2° . Pulse, 100. Ordered soda salicylate gr. **xx** every three hours. At night her temperature after four doses of the soda salt was 103.4° . To continue the salicylate of soda every three hours.

February 10.—She has been light-headed during the night. Her tongue was pale, thinly furred, and tremulous. She had had no sickness. Her bowels had acted twice; motions natural. Her temperature, 102.6° ; pulse, 122; respiration, 30. In the evening she had been sleeping quietly for some hours. Her bowels had not acted again. Her temperature had fallen to 101.8° ; pulse, 120; respiration, 30. The salicylate of soda was reduced by one-half. She has no pain or abdominal tenderness.

February 11.—She had passed a very fair night, having no delirium. Tongue furred. Bowels not open again. No albumen in the urine. No headache. The temperature, 102.4° ; pulse, 110; respiration, 26. The salicylate of soda was stopped, and she was put on two grains of quinine every four hours. In the evening her temperature had risen to 103.4° ; pulse, 124; respiration, 38.

February 12.—Had slept fairly well, was drowsy all day. Her tongue was dry and brown in the centre. Her bowels had acted once; a copious, dark, solid motion. She had no pain or abdominal tenderness. Temperature, 102.8° . Pulse, 130. She was ordered brandy $\frac{3}{ii}$. in addition to her wine.

February 13.—Had a restless night; sleeps a good deal in the day. Four red spots on the abdomen and one on each forearm. These spots were of very doubtful character, and at the time I did not regard them as typhoid. (This is the 10th day of her illness.) Temperature, 103.4° . Pulse, 116. Respiration, 26.

February 14.—Had had a better night, her bowels had acted once; one copious, solid, dark motion. Complains of pain in her abdomen, but has no tenderness. Her cough is troublesome. Two more doubtful spots on the right forearm. Temperature, 101.4° . Pulse, 100. Respiration, 32. Quinine to be given every six hours instead of every four.

No more spots of any sort appeared from this date until the eruption of sudamina about a week later on. On the 16th, as her bowels had not acted since the 12th, she had an injection of warm water, which procured a free evacuation, natural in appearance. On the 16th, 17th, and 18th her cough was very troublesome. On the 20th her cough still remained very trouble-

some. She felt very weak, but had no pain anywhere, or abdominal tenderness on pressure. Wheezing sounds over both lungs, with a little crepitatation at the right base, but no dulness or friction anywhere. As her bowels had not acted since the last injection, she had another of warm soap-and-water, which procured a copious, semi-solid, natural-looking evacuation. On the 21st there was a good deal of subsultus tendinum. On the 23d she was extremely weak, unable to turn in her bed, and could scarcely raise her hand. An abundant crop of sudamina appeared, and successive crops kept coming out from this date until the 6th of March. On the 24th her bowels acted without an injection. From the 28th to the 6th of March she kept almost constantly her knees drawn up, both when awake and asleep, but made during this time no complaint of pain, nor did she seem to have any tenderness of the abdomen on deep pressure. On the 1st of March there was impaired percussion and bronchial breathing over the lower two-thirds of the right lung posteriorly, and these physical signs remained almost unaltered until the 14th or 15th of March. Her temperature did not fall to the normal until March the 7th, the 32d day of her illness. She continued to improve slowly, and left the Hospital on the 29th of March.

TABLE OF TEMPERATURES, &c.

Day of Month.	Day of Fever.		Temp.	Pulse.	Resp.	Remarks.
Feb. 7.	4th or 5th	A.M.	103.4°	112	...	
		P.M.	103.4°	112	...	
8.	6th	A.M.	104.5°	104	...	
		P.M.	104°	...	...
9.	7th	A.M.	104.2°	100	...	
		P.M.	103.4°	108	...	Put on salicylate of soda, gr. xx. every 3 hours.
10.	8th	A.M.	102.6°	122	30	Delirium at night.
		P.M.	101.8°	120	34	Salicylate of soda reduced by one-half.
11.	9th	A.M.	102.4°	110	26	Salicylate of soda stopped. Put on gr. ii. of quinine every 4 hours.
		P.M.	103.6°	124	38	
12.	10th	A.M.	102.8°	130	...	
		P.M.	102.6°	112	28	
13.	11th	A.M.	103°	116	26	Four spots noticed on the abdo- men, of doubtful appearance ; one on each arm.
		P.M.	102.8°	106	32	
14.	12th	A.M.	101.4°	100	34	Two fresh spots on the right forearm.
		P.M.	103.4°	110	38	Cough troublesome.

TABLE OF TEMPERATURES, &c.—continued.

Day of Month.	Day of Fever.		Temp.	Pulse.	Resp.	Remarks.
Feb.						
15.	13th	A.M.	102.2°	102	32	
		P.M.	102.4°	106	...	
16.	14th	A.M.	102.6°	96	34	Cough very troublesome.
		P.M.	102°	104	30	
17.	15th	A.M.	101.2°	104	34	Do.
		P.M.	103.4°	98	32	
18.	16th	A.M.	104.2°	108	36	Do.
		P.M.	102.4°	106	38	
19.	17th	A.M.	102.4°	106	30	
		P.M.	102.8°	104	44	
20.	18th	A.M.	103.4°	112	38	A crop of sudamina.
		P.M.	102.6°	114	40	
21.	19th	A.M.	101.8°	100	40	Subsultus tendinum.
		P.M.	103°	114	30	
22.	20th	A.M.	101.2°	112	42	
		P.M.	103.8°	114	38	
23.	21st	A.M.	102.6°	114	36	A very abundant crop of sudamina.
		P.M.	103.4°	112	48	
24.	22d	A.M.	102.4°	118	38	
		P.M.	103.8°	118	42	
25.	23d	A.M.	102°	118	...	
		P.M.	102.4°	118	42	
26.	24th	A.M.	101.8°	116	46	
		P.M.	102.4°	118	44	
27.	25th	A.M.	101.8°	108	...	
		P.M.	102.4°	120	34	
28.	26th	A.M.	101.6°	108	32	
		P.M.	102.4°	122	36	
March						
1.	27th	A.M.	101.8°	138	32	Impaired percussion, and bronchial breathing lower two-thirds of right lung.
		P.M.	100.8°	114	32	
2.	28th	A.M.	100.4°	116	32	
		P.M.	102°	116	28	
3.	29th	A.M.	101.4°	120	32	
		P.M.	101°	108	36	
4.	30th	A.M.	100.6°	106	32	
		P.M.	99.6°	98	...	
5.	31st	A.M.	99.8°	120	32	
		P.M.	...	...	...
6.	32d	A.M.	99.6°	120	28	Last crop of sudamina came out.
		P.M.	99.8°	98	30	
7.	33d	A.M.	98.6°	110	24	
		P.M.	98.6°	102	22	
8.	34th	A.M.	98.6°	112	30	
		P.M.	97.8°	94	22	
9.	35th	A.M.	97.4°	104	20	
		P.M.	...	...	...
10.	...	...	...	...	...
11.	...	...	98°	98	...	

CASE IV.—Remarkable Abundance of the Rash—Peculiar Mental Condition.

Sarah G., aged 22, a nurse, who had charge of the preceding case, was taken ill on the 9th of March with headache, slight pains in the back. She took, of her own accord, a dose of hst. sennæ co. on the 10th, which opened her bowels freely on that day, and they acted once on 12th, 13th, and 14th respectively.

On the 14th she was warded. Her headache had increased in intensity, and her tongue was thickly and uniformly furred, her lips dry, and a patch of herpes of several days' standing was noticed beneath the right angle of her mouth. Temperature, 103.2°. Pulse, 118.

March 15.—Had not slept at all well during the night. Headache severe, chiefly frontal. Back aches a good deal. Tongue pale, moist, rather thickly furred on the centre of the dorsum, thinning out towards the sides. No sore throat. Fauces pale. Tonsils slightly enlarged, and seem eroded superficially. Bowels acted once during the night; motion powdery. Temperature, 104.2°. Pulse, 116. Respiration, 28.

In the evening she had been restless, trying to get out of bed, complaining much of backache, and having had a good deal of retching. Temperature, 103.8°. Pulse, 120. Respiration, 30.

March 16.—Had scarcely half an hour's sleep all night. Was very restless and rather noisy. The tongue more furred. The bowels had acted once; evacuation solid, formed and normal in colour. There was an ill-defined flushed patch upon the forehead, somewhat elevated and slightly livid. Larger similar patches about the chest and sides of the abdomen. Also on the insides of the thighs above the knees. On the outside and posterior aspect of the thighs there are numerous small wheals resembling urticaria. At 10.30 A.M. she had a semi-solid motion, light in colour. At 12.30 P.M. there was well-marked urticaria on the legs in large patches. The urticaria commences in discrete spots, each with a hair follicle for its centre, the separate spots coalescing to form large patches. Temperature, 103.5°. Pulse, 124. Respiration, 30.

At night she had been retching a great deal in the early evening, but had been quieter since. No further action of the bowels. Still some urticaria remaining. Temperature, 103.4°. Pulse, 116. Respiration, 28.

March 17.—She had passed a fair night, but had had some delirium. Her tongue very furred. Her bowels had been open once; motion scanty. About a dozen rose spots scattered on

the chest and abdomen. Temperature, 102.8°. Pulse, 108. Respiration, 30. Urticaria gone.

March 18.—Passed a restless night, being somewhat noisy; is now very drowsy. Tongue cleaning in patches. Bowels open once in the bed under her, relaxed. Temperature, 104°. Pulse, 116. Respiration, 28. An abundance of rose spots on chest and abdomen.

March 19.—Has hundreds of rose spots on the chest, abdomen, and back. Says that she has some tenderness on pressure in the iliac region. The herpes on the lower lip has quite healed.

March 21.—Talked all night, but she looks better. Her tongue cleaner, with a red central streak. Her bowels have acted three times during the night and early morning. There is an enormous crop of spots on the chest and abdomen, looking like a general eruption; there are none on the face or the backs of the hands, and only a few scattered ones on the arms. No spots at all on the feet. Temperature, 102.8°. Pulse, 118. Respiration, 30.

In the evening of this day she got into a peculiar mental state. She had been noisy and talkative all day, but became even more so at night; her mind was occupied by the idea that she had been to heaven, and was filled with the Holy Ghost, and that there was consequently no need for her to take food; it was with great difficulty that she could be persuaded to take a few spoonfuls of milk and brandy, and in the course of the night she was persuaded to swallow a hydrate of chloral draught, after which she slept for a short time.

During the early morning of the 22d, she had two enemata of beef-tea and brandy, which were retained, a third returned at once, greatly to her satisfaction, as it proved conclusively to her mind that she was not to take earthly food in any manner or shape.

In the afternoon she lay on her back with her eyes almost closed and her arms folded across her chest, taking no notice of what was done to her; even tickling the soles of her feet produced no impression. At the time of my visit we fed her through the nose, getting nearly half a pint of warm milk and brandy down. She appeared to take no notice of our proceedings, neither speaking nor resisting. About an hour afterwards she awoke out of her trance-like condition; took nourishment of her own accord, seemed quite rational, but had no recollection of what had happened. Her bowels had been open twice under her whilst she was in the trance, and once since, when she asked for the bedpan.

On the 23d she was better, though very talkative. She had slept for several hours during the night, had taken nourishment freely. Her bowels had acted four times, the dejections consisting for the most part of curdled milk. Scattered about her face were small purporous spots, and nearly every one of the typhoid spots on her chest and abdomen had become like a purporous spot, not fading on pressure, and of a dusky red colour. Those on the arms were still rosy, and faded on pressure. There is a considerable-sized chemosis beneath the conjunctiva on the outer side of the left eyeball. Pulse, 130. A distinct systolic blow over left base. Respiration, 26. Temperature, 102.6°.

During the day she was in a curious hysterical condition, talking, laughing immoderately on the slightest encouragement, asserting that she was quite well, and wanting to get up. At night her pulse was 116; respiration, 32; temperature, 102°. Her bowels had acted once.

March 24.—Had passed a good night, though noisy and talkative at times. The purporous spots are less distinct. She complains of pains in her legs. There is a large ecchymosis on the inside of the left calf.

From this date she progressed very well, but complained much for several days of pains in her legs. The purporous spots gradually faded, but had not entirely disappeared on April 3d. On the 29th she passed a solid motion. She did not quite recover her mental balance until the 6th or 7th of April, being talkative and hysterical till then. Her convalescence was rapid and complete, and she was able to resume her duties as a nurse in the ward.

Remarks.—This case is of interest, not only from the character and unusual appearance of the rash, and the state of the skin preceding and following the eruption of the typhoid rash, but also from the remarkable trance-like condition which occurred during her delirium. It is also the only instance in my own experience in which I am satisfied that the disease was contracted from immediate attendance on a patient suffering from it.

TABLE OF TEMPERATURES, &c.

Day of Month.	Day of Fever.		Temp.	Pulse.	Resp.	Remarks.
March						
14.	6th	A.M.	...	...	...	Much headache.
		P.M.	103.4°	118	...	
15.	7th	A.M.	104.2°	116	28	Headache continues; pain in the back.
		P.M.	103.8°	120	30	
16.	8th	A.M.	103.6°	124	30	Restless and getting out of bed. Flushed patches on forehead, chest, and abdomen.
		P.M.	103.4°	116	28	Many smaller patches like urticaria.
17.	9th	A.M.	102.8°	108	30	Urticaria gone; a dozen rose spots on chest and abdomen; delirious at night.
		P.M.	103.4°	114	30	
18.	10th	A.M.	104°	116	28	
		P.M.	105°	126	30	
19.	11th	A.M.	103.6°	122	34	
		P.M.	102.8°	114	30	
20.	12th	A.M.	103.4°	116	34	
		P.M.	101.8°	104	...	
21.	13th	A.M.	102.8°	118	30	An enormous number of rose spots out over every part of the body, but face, hands, and feet; delirious.
		P.M.	102.8°	150	...	
22.	14th	A.M.	102.2°	130	22	Passed into a trance-like condition.
		P.M.	104.2°	130	30	
23.	15th	A.M.	102.6°	130	26	
		P.M.	102°	116	32	Very talkative; chemosis of left eyeball.
24.	16th	A.M.	102.2°	114	32	Numerous purpurous spots over trunk and legs.
		P.M.	102.4°	108	32	Very large purpurous patch inside of the left calf.
25.	17th	A.M.	102.2°	110	26	
		P.M.	102°	120	26	
26.	18th	A.M.	101.4°	128	32	
		P.M.	98°	88	32	
27.	19th	A.M.	102°	120	32	
		P.M.	...	...	...
28.	20th	A.M.	102.4°	124	32	
		P.M.	102.4°	120	28	
29.	21st	A.M.	103.8°	120	32	
		P.M.	...	...	...
30.	22d	A.M.	101°	120	32	
		P.M.	...	...	...
31.	23d	A.M.	102°	116	28	
		P.M.	99°	112	24	
April						
1.	24th	A.M.	101.6°	120	36	
		P.M.	99°	100	...	
2.	25th	...	100.8°	116	...	

TABLE OF TEMPERATURES, &c.—*continued.*

Day of Month.	Day of Fever.		Temp.	Pulse.	Resp.	Remarks.
April 3.	26th	...	99.8°	96	24	
	4.	27th	102°	124	32	Purpurous patches all gone.
	5.	28th	99.8°	96	24	
	6.	29th	102°	124	32	
	7.	30th	98.6°	108	24	
	8.	31st	98.4°	100	...	
	9.	32d	97°	80	...	
	10.	33d	97°	88	...	
	11.	34th	98.4°	108	...	
	12.	35th	98.4°	108	...	

CASE V.—*Ardent Fever, with Prolonged High Temperature—Treatment by Cold Baths, Ice—Death during the Fourth Week.*

George M., aged 38, married, admitted into John's Ward, August 12, 1878.

History.—He states that he has been feeling queer and losing his appetite for some weeks (we subsequently learnt from his wife that they had been in very needy circumstances for some time). He felt very queer on Sunday, August 4, but had no shiverings or headache. He says that his bowels have only acted once a day, but that the motions have been loose.

Present condition.—He looks easy; says he is in no pain; complains of a nasty taste in his mouth; teeth encrusted with tartar. Skin pungently hot, palms dry. No eruption or spots on the skin. Pulse, 90. Temperature, 103.6°. Tongue furred posteriorly, clean at the top and edges; not very red. Heart, lungs, &c, normal. Evening temperature, 104.7°.

The subsequent progress of this case, till its fatal termination, is sufficiently shown by the table of temperatures appended. I may add that, in addition to the baths and spongings noted, ice-bags were kept frequently on him, and seemed to exert very little influence on the temperature.

TABLE OF TEMPERATURES, &c.

Day of Month.	Day of Fever.	Hour.	Temp.	Pulse.	Remarks.
Aug. 12.	9th	A.M. P.M.	103.6° 104.7°	90 ...	
13.	10th	4.30 P.M.	105.2°	...	
		5.30 P.M.	103°	...	Placed in a bath at a temperature of 88°; kept in 20 minutes.
14.	11th	11 P.M. A.M.	105.3° 104.6°	96 108	Was cold sponged, and then slept. Pulse dicrotous; two or three rose spots on abdomen, which is full but not tender, B.O. ii.; liquid, powdery; tongue moist. Placed for 30 minutes in a bath at 70°.
		II A.M. II.30 A.M. 2.30 P.M.	104° 100.4° 104.4°	...	Thirty grs. of salicylate of soda given at 5.15 P.M., to be repeated every 3 hours.
15.	12th	9 P.M. A.M.	103.3° 97.4°	102	Pulse very small and soft; has had a bad night; restless, deaf, but no sickness; B.O. vi., ochrey stools; tongue brown; complains of no pain; sweating profusely; very prostrate. Salicylate stopped; brandy 3ss. every hour.
16.	13th	A.M.	99.2°	...	Has had 5vii. of brandy; passed a fairly good night; tongue red, dry at centre, and brown; B. n. O.; bed-sore commencing over sacrum.
17.	14th	P.M. A.M.	101.2° 99.2°	120 112	Had 5v. of brandy during the night; had slept for 3 hours after an opiate; B.O. i.
		8.45 P.M. 10.30 P.M.	105° ...	120 ...	Sponged for 1 hour with iced water. Sponged, and 15 drops liq. opii. sed.; slept for 1½ hours after opiate, and dosed at intervals since.
18.	15th	A.M. P.M.	104.2° 103°	120 112	Delirious during night; B.O. i.
19.	16th	A.M.	104°	110	A fairly good night after opiate; tongue dry and brown; B.O. ii.; pulse fairly full, soft.
		8 P.M. 8.45 P.M.	106.5° ...	120 ...	Placed in a bath at 70° with ice-bag on head; temperature of water rose in 15 minutes to 74°.
		9 P.M. 10 P.M. midnight	102° 105.5° 106.5°	...	A asleep; pulse good. Sponged at frequent intervals during night.
20.	17th	2 A.M.	104°	...	B.O. iii., peacoupy; takes food well.

Observations on Typhoid Fever.

TABLE OF TEMPERATURES &C.—continued.

Day of Month.	Day of Fever.	Hour.	Temp.	Pulse.	Remarks.
Aug. 20.	17th	4 A.M.	103.5°	...	
		11 A.M.	101°	100	
		8 P.M.	106°	...	
		8.20 P.M.	98°	...	Placed in bath at 72°; in 10 minutes temperature of water rose 3°; ice added to water in bath.
		9.45 P.M.	102°	...	Took 3 <i>ii.</i> of brandy whilst in bath. Shivering a good deal; has passed a motion under him.
		11.15 P.M. midnight	100.3° 102.3°	...	
		1 A.M.	101°	...	
		3 A.M.	99.5°	...	
		4 A.M.	99°	...	
		11 A.M.	103.3°	110	Regular fair volume; has slept a good deal and had no delirium.
21.	18th	2 P.M.	103.4°	...	Sponged with iced water.
		5.30 P.M.	104.3°	...	Sponged again.
		7 P.M.	103.2°	...	
		8 P.M.	103.6°	...	
		10 P.M.	103.8°	...	Sponged again; B.O. i. under him.
		10.30 P.M.	101.5°	...	Has not wandered all day; pulse regular.
		midnight	103°	...	
		2 A.M.	102°	...	
		4 A.M.	100.8°	...	
		6 A.M.	100.1°	...	Feels comfortable; passed a quiet night; B.O. vi. since 10 P.M.
22.	19th	2 P.M.	104.8°	...	Put on 10-gr. doses of salicylate of soda every 3 hours.
		8 P.M.	104.5°	...	Placed in a bath at 70° cooled down to 65° for 30 minutes.
		10.15 P.M. midnight	100.5° 100.5°	...	
		2 A.M.	99.8°	...	
		4 A.M.	99.5°	...	
		6 A.M.	101.2°	...	
		11 A.M.	102.4°	120	To have 20-gr. doses of salicylate.
		2 P.M.	104.6°	...	
		5 P.M.	104°	...	
		6 P.M.	103.8°	...	
23.	20th	7 P.M.	103.2°	...	
		8 P.M.	102.4°	...	
		9.45 P.M.	100°	...	His bowels have acted frequently during the day.
		12.25 A.M.	99°	...	
		2 A.M.	99°	...	
		4 A.M.	100.1°	...	
		6 A.M.	102.5°	...	
24.	21st	11 A.M.	103.3°	110	
					Had passed a fair night after 2 A.M.; B.O. ii.; slight discharge from left ear; has taken 3 <i>vii.</i> of brandy in the course of the night and morning.

TABLE OF TEMPERATURES, &c.—continued.

Day of Month.	Day of Fever.	Hour.	Temp.	Pulse.	Remarks.
Aug. 24.	21st	3 P.M.	105°	128	
		7.30 P.M.	104.5°	...	Placed in bath at 70° for 15 minutes.
		9 P.M.	105°	...	
		10 P.M.	104.4°	...	Sponged.
		midnight	102.8°	...	
	22d	2 A.M.	101.5°	...	
		4 A.M.	101°	...	
		6 A.M.	100°	...	
		9 A.M.	103°	...	
		11 A.M.	103.8°	120	Has had a very fair night; no wandering; says he feels easy; sore over sacrum not worse; B.O. ii.
26.	23d	1 P.M.	103.4°	...	
		6 P.M.	104.2°	...	
		7 P.M.	103°	...	
		10 P.M.	102°	...	
		midnight	102°	...	
		2 A.M.	102°	...	
		4 A.M.	102.3°	...	
	24th	6 A.M.	102°	...	
		9 A.M.	102.5°	...	Has had a tolerable night; no delirium; very feeble, but quiet and conscious; takes food well; 5vi. brandy during night and morning.
		10 A.M.	103.8°	...	
		2 P.M.	101.6°	...	
		[8 P.M.	102°	...	
		10 P.M.	101.5°	110	Does not take food so well. From this time he began to sink, and died early on the morning of the 27th.

The following are the notes of the post-mortem examination:—

Body fairly nourished. Lungs and heart normal. Liver large and soft. Spleen twice normal size, very soft. Pancreas and stomach natural. Intestines: an ulcer was found three feet above the ileo-caecal valve; from it downwards shallow ulcers with over-hanging edges became more and more abundant to the valve; several similar ulcers, but smaller, in the large intestines. No perforation. The mesenteric glands were but slightly enlarged. Kidneys, cortex cloudy, capsules easily detached; supra-renal capsules normal.

CASE VI.—Prolonged Fever, with Stupor and unusual Nervous Symptoms—Recovery.

J. D., aged 9, first seen October 9, 1878. His illness commenced, seven or eight days before I saw him, with slight sore VOL. XVII. I

throat, sickness, headache, and some diarrhoea ; there had been slight wandering at night for the last night or two, and his temperature had been 103° , pulse 120. When I saw him, his temperature was just over 103° ; pulse 120; the sickness had passed off ; his tongue was very red at the tip and edges, and coated with white fur over the dorsum ; there were no spots, but much tumidity and some tenderness of the belly. He remained much in the same condition until October 17th, taking nourishment fairly well. No urgent diarrhoea ; a few spots had made their appearance. His temperature had been continuously high, varying from 104° to 103° , and his pulse from 120 to 130. He was very stupid and heavy. His mouth had to be forced open for nourishment.

On the 19th, the stupor almost amounted to coma ; the arm and leg on the right side appeared partially paralysed. He never moved them voluntarily, and when pricked only feebly and uncertainly. There was no squint ; his pupils were dilated, but acted when exposed to strong artificial light. He had had no sleep for many hours, but lay in a semi-comatose condition with the eyes partially open. The temperature was 104° , pulse 128, regular. I placed him in a bath at 84° , and kept him in ten minutes, by which time his temperature had fallen to 102° , pulse 128. Two hours after his bath he appeared slightly more conscious. Temperature, 102° . Pulse, 120.

On the 20th, he was much the same ; put his tongue out when told to do so, but could not be got to repeat the movement. His arm and leg still kept motionless ; no facial palsy or squint.

On the 23d, a decided improvement occurred in his condition ; his temperature fell, his skin became moist, and he got some natural sleep with his eyes closed.

From the 23d to the 27th, his symptoms gradually improved, his temperature becoming irregular, having morning remissions and evening accessions of pyrexia, the temperature on the mornings of the 25th and 26th being normal.

On the 27th, he was decidedly better ; would put out his tongue when asked, and moved the right arm and leg feebly. His pupils reacted readily to light ; his tongue was cleaning, and he took food readily.

On the 29th, no remission of pyrexia occurred, and from the 29th to November 3d the temperature remained continuously high, never being below 103° , except as the immediate result of cold sponging. During this period he slept well and took his nourishment freely ; the bowels were confined ; an injection of olive oil on November 1st bringing away some hard faecal matter,

and in the course of the night being followed by two soft and pulpy motions.

On November 4th, the temperature rose to 105° , and the pulse, which had been all along steady at 120, rose to 136, and was weaker. His stimulant was increased to $\frac{3}{4}$ jss. of brandy; he continued to take nourishment well.

On November 5th, there were some fresh spots out on the chest and abdomen. During the 6th and 7th his stimulant was increased to $\frac{3}{4}$ v., his pulse being very rapid and feeble.

On November 9th, he was much better, and the stimulant was reduced to $\frac{3}{4}$ iv. On the 10th the temperature fell to 101.7° ; pulse 144, stronger. Tongue still thickly covered with fur, but cleaning at tip and edges. No spots visible. Apparently quite conscious, taking notice of everything going on about him. Moves his right arm and leg more freely. His bowels since the injection have acted regularly, motions partly solid.

On November 14th, the temperature first became normal, i.e., on the 35th day of the fever.

From this time he gradually though slowly progressed to convalescence. During convalescence he made great complaint of pains in his legs, but he had no rise of temperature or bad symptoms from this date; was able to be out of bed on December 9th, the 70th day of his illness, and eventually made a perfect recovery, neither mind nor body suffering in the least.

CASE VII.—*Periostitis of the Tibia during Convalescence.*

William B., aged 15, admitted into John's Ward, March 3, 1879. Had been taken ill three days previously with headache, diarrhoea, and pains in the stomach. Pulse, 88. Respiration, 20. Temperature, 101.5° .

His attack of fever was severe though short, the temperature becoming normal on the 14th day. His fever had been accompanied by delirium and peaseoupy stools. He had a copious eruption of rose spots. During his convalescence, on the 38th day from the commencement of his fever and the 24th from the commencement of his convalescence, he complained of pain along the crest of the right tibia. His leg was found slightly swollen, and a faint blush extended over the lower third of the tibia on the inner side. The swelling felt hot, and he complained of its being very tender on pressure. His general condition at the time was excellent, and there was no rise of temperature or pulse. The redness and swelling over the tibia remained without change for a week or more, the pain being worst at night, and he was obliged to keep his bed again. He

eventually recovered without suppuration or necrosis taking place.

CASE VIII.—*Typhoid Fever with Relapse—Perforation on or about the 42d Day.*

John M., aged 24, an engine-fitter, admitted to John's Ward, September 13, 1878. He was supposed to have been ill nine or ten days on admission. He had a severe attack of fever, accompanied by low muttering delirium at night, and a high temperature, reaching on the 10th day 104.6° , and on the 14th day 104.8° . He had no urgent diarrhoea and no pain in the belly, but it was always tumid. His temperature fell gradually from the 14th day of the disease to the 18th, when it was only just above normal, 99.2° in the morning, rising to 101° in the evening; his pulse 108; respiration, 40.

On the 19th day of his illness there was slight haemorrhage from the bowels, his temperature being 101.4° ; pulse, 120; respiration, 36. The belly still tumid, but no pain in it, nor tenderness on pressure. No fresh spots were seen. No further haemorrhage occurred; his motions were rather scanty and solid. His temperature became normal on the 22d day, and remained so until the 27th, during which time he improved greatly, and I ceased to feel anxious about him. His tongue, however, never cleaned; and though he complained much of hunger, I withheld any solid food.

On the 29th day of his illness his temperature jumped up in the evening to 101.8° , and continued to rise during the night to 102.8° on the morning of the 32d. As his bowels had not acted for two days, an injection was ordered, which brought away a stool containing numerous solid lumps, some without bile in them. On the 33d day his temperature had fallen to 101° , and he felt pretty well, but weak. The abdomen was natural, tongue rather furred, but not red. On the 35th day the temperature rose to 103° , and from that date until the 42d day there was no material change in his condition. On the night of the 42d day he slept well until 3 A.M., when he woke, and soon after had some, but not very severe, shivering. He complained of some pain near the umbilicus, and the abdomen was a little tumid. The following day the abdomen became more distended; he made greater complaint of pain, was much weaker, and passed some dark faeces under him. The pulse very weak. Tongue very red. His temperature in the morning reached 104.6° , but fell during the day, and continued to fall until his death on the 44th day of his illness.

CASE IX.—Scarlet Fever and Typhoid concurrently.

Sophia W., aged 19, admitted to Elizabeth's Ward, December 10, 1878. History of present illness dates from December 4th, when she was taken ill with severe pain in the back and loins; on the 8th she had severe pain down the thighs and some sore throat. On admission, her throat was red and rather livid. No rash of any sort visible. Her abdomen was tumid and tender on pressure. Pulse, 120. Respiration, 26. Temperature, 104.4°.

On the 13th, her spleen could be easily felt, and was tender, and her bowels were for the first time loose and the motions ochrey. On the 14th a few distinct typhoid spots were found on the loins. On the 15th, 16th, 17th, 18th, the motions were the same in character, but more frequent; an abundant crop of spots, and the abdomen tumid and tender. About a fortnight after admission desquamation was first noticed, and she desquamated very freely all over. She recovered perfectly, and her convalescence was not slower than usual.

Before concluding, I must return my best thanks to my various house physicians, whose notes have afforded the materials for this paper, and more especially am I indebted to Drs. Verco, Ormerod, Prickett, and Wyatt, under whose immediate care the greater number of the cases were.

AN HISTORICAL CASE OF TYPHOID FEVER.

BY

NORMAN MOORE, M.D.

The exact knowledge of typhoid fever is of very modern growth, yet there are few diseases of which it is more difficult to state the first date of precise description. The discovery of the anatomical changes which take place in typhoid fever is not due to any single observer. It began in observations in which typhoid was noticed to have distinctive anatomical appearances, but in which it was not completely disentangled in the minds of the writers from the almost innumerable fevers with which in old times it was confounded. Accumulated observations, tabulated from time to time, brought out with more and more precision the features, symptomatic and anatomical, of the fever, and at last established the disease among those about which, so far as morbid anatomy is concerned, there is no doubt.¹ In England this precise distinction of typhoid from all other fevers has been mainly due to the present President of the College of Physicians.

Though its discovery in a scientific sense is of our own day, many cases are to be met with in history and in old medical writings which may have been examples of typhoid fever.² I have, I think, found one in which the facts recorded are sufficient to carry the question beyond the region of possibility, and

¹ Watson, *Lectures on Physic*, 5th ed., Lond. 1871, ii. 865. Barthez, E., et F. Rilliet, *Maladies des Enfants*, 2d ed., Paris, 1853, ii. 664 *et seq.*

² Even the fever of which Alexander the Great died may have been typhoid, though the details given in Arrian are insufficient to prove this. Sir Henry Halford (*Essays and Orations*, 2d ed., Lond., 1833, p. 166) thought Alexander's disease a remittent fever, and Littré (*Médecine et Médecins*, 3d ed., Paris, 1875, p. 413), in his admirable essay on the same subject, says that the fever was one of those "que plusieurs médecins de l'Algérie ont désignées sous le nom de pseudo-continues;" but a typhoid fever aggravated by the treatment is not inconsistent with the description.

admit of a demonstration that typhoid fever existed in England in the year 1612. In that year Henry Prince of Wales, eldest son of King James I., died, after a short illness, of a disease which the physicians of the time were unable to diagnosticate further than that it was a fever. Poison was suggested at the time as the cause of death, and the popular groundless rumour has been occasionally repeated by historians,¹ but neither then nor since has this rumour had any support even in opinion, and the disease which cut short the career of a prince from whom much was hoped has been generally regarded by historians as natural in its origin but unexplained.

I hope in this paper to demonstrate that Prince Henry Stuart died of typhoid fever.

I was led to the inquiry by a paragraph in Roger Coke's amusing history of the reigns of the Stuart kings,² which excited my curiosity as to the Prince's malady. As Coke's book is not in every library, I will quote the passage,³ and shall venture to give also some preceding paragraphs, so as to recall Prince Henry himself to recollection, before proceeding to the history of his fatal illness.

"This year was wounded up in a mournful catastrophe, for upon the 6th of November Prince Henry died in the beginning of the blossom of his youth, being 18 years, 8 months, and 17 days old: a Prince adorned with wisdom and piety above his years, strength and ability of body, equal to any man, of a noble and heroick disposition, and an hater of flatteries and flatterers, and therefore fell flat at odds with Rochester, not once giving him any countenance or vouchsafing him his company.

"I have heard my father (who was about the Prince's age) tell several stories of him. Once when the Prince was hunting the stag, it chanced the stag being spent crossed the road, where a butcher and his dog were travelling. The dog killed the stag, which was so great that the butcher could not carry him off. When the huntsman and company came up they fell at odds with the butcher, and endeavoured to incense the Prince against

¹ Sir Thomas Lake: Letter to Sir D. Carleton, Nov. 10, 1612. *Calendar of State Papers (1611-1618)*, p. 155.

"Violent reports were propagated, as if Henry had been carried off by poison; but the physicians on opening his body found no symptoms to confirm such an opinion."—Hume, *Hist. of England* (ed. Lond., 1848), iv. 269.

"Rumours of his having died of poison were immediately abroad, and in spite of the most decisive proof of his natural death in the report of his attending physicians, continued to be repeated for more than a century."—Sir J. Mackintosh, *Hist. of England* (ed. Lond., 1835), iv. 236.

² A Detection of the Court and State of England during the Four Last Reigns and the Interregnum, by Roger Coke, Esquire. Two vols. London, 1696. 2d edition.

³ Coke, *Detection*, p. 36.

him; to whom the Prince soberly answered, ‘What if the butcher’s dog killed the stag, what could the butcher help it?’ They replied, ‘If his father had been served so, he would have sworn so as no man could have endured it.’ ‘Away,’ replied the Prince; ‘all the pleasure in the world is not worth an oath.’ Another time, when the French ambassador came to take his leave of the Prince, the ambassador asked him what service he would command him to his master. The Prince bid him tell his master what he was doing, being then tossing a pike. The Prince had an high esteem for Sir Walter Raleigh, and would say no other king but his father would keep such a man as Sir Walter in such a cage, meaning the Tower.

“His court was more frequented than the King’s, and by another sort of men; so that the King was heard to say, Will he bury me alive? And the high Church-Favourites taxt him for being a patriot to the Puritans. Never was any Prince’s death more universally and cordially lamented, and the more by how much the suddenness of his death being known before his sickness was scarce heard of, was surprising. As men’s humours flowed, they vented their passions; some said a French physician killed him; others, he was poisoned; and it was observed that poisoning was never more in fashion than at this time; others, that he was bewitched, &c.

“Whether it were to appease these clamours, or out of curiosity, I cannot tell; but Dr. Mayerne, Dr. Atkins, Dr. Hammond, Dr. Palmer, Dr. Gifford, and Dr. Butler were ordered to dissect the Prince’s body the next day after his death, and to give their opinions of it, which were—

“First, they found his liver paler than ordinary, in certain places somewhat wan; his gall without any choler in it, and distended with wind.

“Secondly, his spleen, in divers places, more than ordinarily black.

“Thirdly, his stomach was in no part offended.

“Fourthly, his midriff, in divers places, black.

“Fifthly, his lungs were very black, and in divers places spotted and of a thin watery blood.

“Sixthly, that the veins of the hinder part of his head were fuller than ordinary, but the ventricles and hollowness of the brain were full of clear water.”

In the Record Office, I found the original of Coke’s account of the autopsy, and in the works of Sir Theodore Mayerne the clinical notes of the case written by Mayerne himself, with his opinions, and those of the other attendant physicians. These notes I reduced to modern form, adding nothing, and on reading

them, found that a case of typhoid fever was very clearly described. Mayerne's works contain two accounts; one in French, apparently for the court and public; and one in Latin, in which technical expressions are more fully used, and which was probably intended for his profession and the learned world in general.¹

I shall first give a translation of Mayerne's French and fuller account of the Prince's illness, and shall then state in a concise form and in modern terms the symptoms recorded.

Mayerne² was at the time physician to King James I. He is the French physician alluded to in the passage I have quoted from Coke, and had the chief direction of the case. I have omitted nothing but a page of preface in which the reasons for publishing an account of the case are set forth—that it is to explain a death which the age and constitution of the Prince had made unexpected, to answer malignant talkers, and to make the truth known.

"True Account of the Illness, Death, and Opening of the Body of the Most High and Most Illustrious Henry, Prince of Wales, deceased, at St. James's in London, the 6th of November 1612."

"Mors sceptra ligonibus æquat."

"The fact is as follows:—

"His Highness was in the nineteenth year of his age, and of a very warm constitution, wont to bleed very often and much, from the nose, even without exercise, but much more after violent bodily exertion. This natural evacuation was suppressed for three months during the past summer of this year 1612 (excessive in degree and continuance of heat beyond the memory of living man in England). The Prince continually fatigued his body by exercises and violent occupations, hunting in the heat of the day, riding and playing tennis, and in consequence he often heated his blood extraordinarily (for it was his habit, having started in the morning, not to sit down all day long).

¹ Theo. Turquet Mayerne, *Opera Medica*, ed. J. Browne, London, 1701. Another copy in the Library of the Royal College of Physicians is dated 1700, but in no way differs from this: 1701 seems the true date of the edition.

² T. T. Mayerne was son of Louis T. de Mayerne, who wrote a history of Spain. He was born near Geneva in 1573, and Beza was his godfather. He took his M.B. degree at Montpellier in 1596; his M.D. in 1597. He was successively physician to Henry IV. of France, James I., Charles I., and Charles II. of England. He died at Chelsea in 1655. Astruc, *Mémoires pour servir à l'Histoire de la Faculté de Médecine de Montpellier*. Edited by Dr. Lorry. Paris, 1767.

And further, he ate strangely to excess of fruit, and especially of melons and of half-ripe grapes, and often eating his full of fish and of raw and cooked oysters beyond rule or measure at each meal, three or four days of the week. He would moreover finish, in order to cool the burning heat which worked in his body during the summer, by plunging into the river after supper, his stomach full, and would remain several hours in the water.

"After all these irregularities, he fell ill at Richmond on the 10th of October 1612.

"On the two following days he had two accesses of fever, with shivering and heat, but without subsequent sweat. He was seen by his usual physician, who ordered him simply a softening clyster without any laxative. After a gentle action, the humours having been moved which were in his repleted body, the next day his bowels were opened twenty-five times, and a very great quantity of bile, decomposed and disgusting, and at the last some phlegm.

"This evacuation did good, but the root of the disease remained fixed, and his body being disturbed by restlessness, lassitude, and broken sleep, his Highness's physician decided to purge him with the pills the Prince had been accustomed to take before meals, which operated gently four or five times, and with much relief. Nevertheless, some days after the disease had gained ground little by little, and nature given way to morbid influences (although his Highness struggled against his malady, trying to hide it, and to throw it off).

"On the 15th day after the first beginning of all his indisposition, which was the Sunday, October 25th, his Highness, who had been very ill on Saturday (although he was seen to play tennis), and had found himself much worse on Sunday morning, having a pale and washed-out face, his eyes hollow and dull, being at Whitehall at three in the afternoon, fell into a slight fainting fit (an accident frequent in him and in many of his race), which was followed by a slight shivering and a hot fit, with severe headache. His headache had been continuous for several days, with some dizziness, especially when he wished to get out of bed. At last his Highness had an access of fever. Whereupon his Majesty having sent to him Dr. Mayerne, his first physician, he reached the Prince at eight in the evening, and found his Highness in a fever, his face red, his eyes troubled, being unable to bear the light of the candle; black lips, tongue dry, with an extreme thirst (which distressed his Highness very much throughout), but with his brain unaffected, and able to understand his bad condition. For the time the doctor contented himself with ordering a cordial and refreshing ptyasan to

appease the thirst, and broth to be swallowed at the end of the access.

"The next day Dr. Hammon,¹ his Highness's usual physician, and the above Dr. Mayerne, the King's physician (sent by his Majesty), met, and having considered that his Highness had had a very restless night (as the five or six preceding nights had also been), and finding him with the same thirst and dryness as before, with trembling of the nervous parts, and the belly tense, urine abundant and white, and constipation, they agreed to order him a lenitive clyster, which purged him gently three or four times of yellow and very foetid bile.

"All this day his Highness was without fever. He rose and played after dinner with my lord the Duke of York, having always a distressed countenance and dryness of mouth, with extreme thirst, to meet which cordial refreshing juleps were ordered for him, acid, and in which (to prevent all malignity) were not forgotten behazar, unicorn horn, and similar antidotes. His soups were made with the same object, and all the rest of his diet had the same end. As usual, his night was restless, and the thirst, which they tried to control with the above juleps, constant.

"The next day, at three in the afternoon, the access came with cold and great heat, which increased with all the above-described accidents till eight o'clock. At nine the fever grew less, and ceased altogether after ten. In the morning his Highness slept pretty quietly. However, great rumblings in the belly were audible, and the hypochondria were more tense than natural.

"Which points considered, the aforesaid doctors having fought the battle by cordials all this day, and reckoning the date of the disease from Richmond, and not only from the Sunday, and considering the profit which his Highness had received from the evacuations, whether natural or artificial, which had gone before, and again casting an eye on his way of life and on the great abundance of decomposed humours which were within the natural parts, and which had lighted up or had created a fever which followed the movement of a tertian (malignant above all because of the remarkable decomposition, and almost becoming continuous for the quantity of the matter, as after it became), the aforesaid doctors consulted as to a light purgation, sufficient only to lessen the quantity of the humours. They judged it the more necessary because the last clyster and the sounds audible in the belly incited to relieve nature on this side. His Highness was moreover asked by the said doctors to call advice to deliberate

¹ John Hammon, M.D. (Trinity College, Cambridge), Munk. Roll, i. 147, father of the Latinist, to whom William Wotton, the youthful prodigy, was compared by the Master of Catharine Hall. "Nec Hammondo nec Grotio secundus."—Monk, Life of Bentley.

and discuss more fully on this affair. This he declined at once, not wishing to have a number of physicians, as those who came could learn from his expression, and as his Majesty can testify. Thus not to let the day following pass without doing this which was very necessary, his Highness being altogether without fever, a mild medicine was given to him of senna boiled, and rhubarb infused in cordial and refreshing liquors, and of syrup ræsat. solutif. This medicament acted with an incredible gentleness seven or eight times, and drove out decomposed bile and at the end mucus. From this day the urine began to change, to diminish in quantity, and to show some signs which presaged concoction. The night, as usual, was restless, except towards morning. The breathing, which was always short, was more easy and longer; the headache less; the buzzing in the ears which had lasted (though unequally) from the beginning to the end, the shiverings the same. In this state juleps with behazar, unicorn, pearls, bone of stag's heart, &c., were continued.

"The following day the access came with slight shiverings, which afterwards were not felt, and from this hour the fever was always continued with remarkable remissions and increases each day, very unequal, the one great, the other less. During this continued fever the tongue became black, the thirst increased, and the tremblings and the buzzings.

"At the end of the fifth, nature endeavoured to accomplish something by the belly, but little; the urine in no way indicated the severity of the disease. Dr. Butler was called in, who only advises internal and external cordials and analeptics, and approved of the diet ordered, and his advice was followed. The night was very unquiet, and the morning as usual a little less restless. The sixth day, the bowels having been washed with result by a clyster in the morning, at 3 P.M. there set in the least increase, during which the face was very red, the respiration short, the pulse full and rapid.

"In the access the nose began to bleed, but after two ounces the blood stopped, not without some relief. This bleeding to a less degree occurred on the seventh and eighth day. From this time bleeding was proposed, to which nature seemed to invite by this effort, in a fever henceforth continued, in an extreme fulness, in a temperament excessively warm, and in a subject accustomed to bleed from the nose and deprived of this benefit for several months.

"Nevertheless the seventh passed, and the majority of the physicians were of opinion that the crisis ought to be waited for although the disease had increased, and that there was still no appearance of it (the crisis). Thus this day the great redupli-

cation came with more sweating, even when the patient was awake. Blackness, dryness, and moulding of the edges of the tongue, ulceration of the throat, buzzings and tremblings greater. The urine increased in quantity, and there was a terrible restlessness which lasted all night. The increase of the illness and the fact that nature began to decline caused bleeding to be most strongly urged as the sole remedy to save his Highness, if kept within due quantity, and even repeated if need was. As all sorts of appearances were found in regard to the constitution of the body, to the age, to the forces, to the disease, and to the accidents, after a very great discussion at last the three doctors, Mayerne, Hammon, Butler, came to an agreement the eighth day after his Highness had taken to bed, and in their presence from the median of the right arm were taken 7 to 8 oz. of blood. His Highness bore bravely this blood-letting, wished that more had been taken, and had no feebleness. The blood flowed in a good stream, and almost at once some relief was obvious. The blood when cool was seen by any one who wished, all fluid blue below, and almost without fibres, and clotting with difficulty.

"Throughout his disease his Highness was never so well as on this day and had no increase, so that it seemed as if his pulse was about to come out of the febrile state. The tremblings and buzzings were less, the night better, although disturbed, the urine and the discharges more formed, the thirst a little diminished, and the eyes better able to bear the light.

"The 9th day the great increase returned, a little less in heat than up to the 7th day. In this access the respiration became shorter, the pulse more frequent, the face redder, the tongue blacker, and the thirst greater, the tremblings continued, and the sighing began; in short, everything made it obvious that the blood and the humours were thrown with abundance and violence towards the brain.

"This night came on great sweating and wandering talk. His Highness cast himself out of bed, asked for his clothes, and talked of walking out.

"In the morning Dr. Atkins¹ was sent by the King to the Prince, who bore his coming with impatience till he was persuaded by the other physicians that he stood in need of help from every kind of good counsel, and that the number of learned men could not but be useful and likely to lead to the recovery of his Highness.

"The aforesaid Dr. Atkins stated before his Majesty and before the Lords of the Council that this disease was a putrid fever, of which the focus was below the liver in the primæ viæ,

¹ President of the College of Physicians in 1618.

and recognised the malignity which accompanied it to proceed from the rottenness which, being in a sovereign degree, held the place of poison.

"The 10th, all the accidents increased, and the tremblings passed into convulsions, the sweating being greater and the sighing worse with the fever, which, with all the other ills, grew worse towards the evening. In the morning bleeding was proposed, which being disapproved by the majority, more powerful cordials and a clyster were tried, by which was driven out a quantity of fluid ill-smelling matter, and his Highness discharged stones of grapes which he had eaten ten or twelve days before.

"All was without effect, and the night of this day his Highness began (the fever being augmented) to sweat more than ever and to toss himself hither and thither; he wished to leap out of bed, singing when asleep and plucking his bed-clothes.

"The convulsions with which from the 5th day the sweating had been accompanied were more violent, the tongue, although like all the throat dry and black, did not incite his Highness to ask for drink; a certain sign that the seat of reason suffered greatly. At last, during all the 11th all went from bad to worse (notwithstanding a very slight remission), and the most part of the council of consultation was of opinion that the crisis ought to be awaited, although postponed and without appearance.

"The night of the 10th, cupping-glasses with scarification were applied to the shoulders and pigeons on his shaved head.

"The 11th, a cock split by the back, and the cordials were doubled in number and quantity, all without any profit.

"Then the danger appeared indubitable which had been long predicted. To obviate which, as far as the art would allow and the condition of the disease seemed to call for it, the 12th morning, the doctors, Mayerne, Hammon, Atkins, and Butler, were driven yet again to blood-letting. Some among them suggesting that the blood being cast violently in the opposite direction and filling the brain, caused acrimony by its malignity, and by the quantity the sweats and convulsions, always without pain, because the spirit was troubled.

"Which accidents placed his Highness in imminent danger more than the sighing, the cause of which was in the ventricles, as the above-mentioned blood, warm and bilious, to the membranes. And as by consequence there was no more immediate remedy than to open the vein, which the forces seemed not to contra-indicate, for the pulse was sufficiently strong, and as his Highness arose to go to the chaise percée, and there remained a long time without any feebleness, which he had not done since the beginning of his illness. The rest of the council did not find this

advice good, and wished to go on to double and treble the cordials and to make revulsion from the brain with a clyster, which acted very well, but without other effect except that his Highness came to himself and heard with attention and understanding the exhortations and prayers of my Lord the Archbishop of Canterbury, showing excellent signs of piety and contempt of this world, and a great readiness to prepare himself to go to enjoy everlasting rest. After that he slept tolerably quietly for three hours, the convulsions and sweats being less.

"In the evening, besides the above-mentioned doctors, the Drs. Gifford¹ and Palmer² were introduced. All together held consultation, at which some having said that they recognised the plague in this illness (though not one of those who drew in a thousand times the breath of his Royal Highness and continually watched about him felt at all the worse, and though, further, in all his illness he never had any affection of the heart, vomiting, nor any stroke of purple on his body), the others having denied this altogether, and having again insisted on the great need of bleeding, of which the opportunity had long since gone by on account of the evacuation of the belly. At last, by a majority of voices, the diascordium was decided on in presence of Sir Thomas Challoner, chamberlain of his late Royal Highness, who, among others, a most worthy servant of his master, had continually assisted him and was present at most of the consultations with Sir David Murray, first gentleman of the chamber and master of the wardrobe, whose faithfulness and zeal are known to all the world. The account of the aforesaid consultations can be testified by these two personages of honour, and confirmed by their voice and that of all the officers and gentlemen of his Highness, who were witnesses of all.

"According to the conclusion taken at 10 P.M. the diascordium was given, tempered with less warm cordials. Its operation was slight, and his Highness rested with his usual symptoms.

"After four hours the spine of his back, his shoulders and arms, with his tongue, suffered frequent convulsions. The sweating increased. His Highness passed his motions under him in the bed, and death seemed to be very near. In this despair everyone hastened to check this inexpressible loss, and each in the abundance of his affection proposed whatever he thought might do good. The doctors (after their prognostic, of which they saw but too clearly the truth) never gave way so far as to give his Highness any substance of which they did not know the preparation or the composition. At last, by common advice of

¹ Probably John Gifford, President of the College in 1628.

² M.D., Christ's College, Cambridge.

all six, a cordial was given to his Highness, which had its effect in lessening the convulsions and in making him sweat copiously. But all in vain, so that this very illustrious prince, praiseworthy in all his qualities, having received no relief from this evacuation, the council of physicians, seeing nature conquered and art not having power to succour her sufficiently, left the rest in the hands of God, to the Majesty which it pleased to call this illustrious and heroic soul, taking it from this low world softly and with all the piety one could wish to observe in a Christian, to lodge him in His paradise, to live there for ever.

"Which took place at 8 o'clock in the evening, on Friday, November 6, 1612.

"This is the simple truth of the whole history of this fatal misfortune."

Such is the full account of Sir Theodore Mayerne. Before proceeding to his description of the post-mortem examination it will be worth while to examine the symptoms recorded.

The physicians seem to have avoided a precise diagnosis.

In a preface to his Latin Notes, Mayerne says that many others in the summer of 1612 had a similar fever. It usually began like a tertian, but soon became a continued fever. In those who did not die it lasted a long time. Delirium, stupor, and convulsions often occurred. Hæmorrhage sometimes ended the case. There were spots like fleabites in many cases. The disease was not contagious, nor did one infect another, but sometimes many were sick at the same time in one house.

Some physicians said they had never seen the same kind of fever before, and called it the new disease. "Medici errori plebeculae faventes hunc affectum the new disease novum morbum appellavere."¹

In this account of the epidemic, typhoid fever seems to me indicated for the following reasons:—

- (1.) The fever began gradually with intermissions.
- (2.) After a time it became continued.
- (3.) It lasted a long time.
- (4.) There was an active delirium.
- (5.) There was an exanthem of small red spots.
- (6.) The fever was not obviously contagious or infectious, though people living in the same house had it together.

I shall return to the discussion of the nature of the epidemic to which Prince Henry fell a victim after reducing Sir Theodore's prolix notes to a more concise statement.

In this abstract I have substituted modern for obsolete medical expressions.

¹ Mayerne, Opera, p. 116.

SUMMARY OF THE CASE.

- October 10, 1612.—Began to be feverish.
- October 12.—Bowels opened twenty-five times after clyster.
He felt better, but lassitude and headache continued.
Bowels opened five times after a purgative pill.
He kept his bed.
Nights restless, with throwing about of limbs.
Eyes dull, hollow. Face pale; lips dry. Slight sordes upon lips.
- October 24.—Got up and took exercise.
Became worse.
- October 25.—Heard prayers.
Dined with his father.
Ate grapes. Had almost facies hippocratica.
At 3 P.M. slight faintness.
A rigor.
Pulse febrile.
Face red.
Abdomen tense.
Great thirst.
Tongue white, dry in the middle.
Lips dry and black.
Night restless.
- October 26.—Subsultus tendinum most obvious in arms.
Five yellow fluid stools after clyster.
He got up and dined, playing afterwards with his brother.
Countenance greatly depressed.
Night restless.
Respirations frequent: short inspiration; longer expiration.
- October 27.—Symptoms as before.
Temperature rose at 3 P.M. and began to sink again at about 8 P.M.
Temperature normal at 10 P.M.
Rumbling in abdomen.
Abdomen more tense.
Buzzing in ears.
Slept a little towards morning.
He was not sick; "sed [natura] per inferiora semper sublevata fuisset."
- October 28.—Therefore a purge; senna and rhubarb.
Nine bilious, fluid, foetid motions.
Tongue more dry.
Night restless. Subsultus as before.
- October 29.—From this temperature continuously raised, not always equally high, but never normal.

Thirst, lips, tongue, tinnitus, &c., as before.

Restless night.

October 30.—Clyster in morning.

Bled from nose 3*ii.*

Fever greatest at night.

Slight perspiration.

October 31.—No better; delirious.

Forehead moist.

Tongue black and fissured.

Night very restless.

November 1.—Bled to 3*viii.* Better.

Night restless.

Stools fluid.

November 2.—More somnolent.

Subsultus as before.

Bilious, watery, foetid stools.

Jactitations at night.

Rambling talk.

Tried to get out of bed.

Said he would go out.

November 3.—Clyster of senna.

Grape stones and skins in stools.

Somnolent and delirious.

Fever greater at night.

November 4.—All symptoms worse.

He sang in his sleep; got up; plucked the bedclothes, and drew the quilt towards himself.

At night the subsultus became convulsive.

Pulse swift.

Very restless night.

November 5.—Got out of bed and sat on night-chair without fainting.

Seemed to have some strength left.

Towards evening greater delirium; violent convulsive movements. Some hard masses in stools, such as Sir Theodore Mayerne had often observed to return a little before death.

Slept four hours.

At night jumped out of bed after a convulsive movement of the back; babbled; bowels opened three times.

Slight cough due to catarrh.

November 6.—Obviously dying.

Delirium and convulsive movements ceased; copious cold sweat.

Sinking pulse, and so died gradually and quietly.

Mayerne's notes show him to have been a good observer, and in careful record of detail far superior to any mediæval physician. I have omitted his comments and theoretical explanations of the symptoms, but his Latin note on the Prince's death is too curious to be left out. It shows that three hundred years had not changed everything in medicine, and that, like the Doctour of Physik in the Canterbury Tales, "he was grounded in astronomye."

"Hora octava. in maris fluxu (Plurimi hoc signum viderunt E. C. domestici et alii) Luna admodum debili, placide et pie

In Christo obdormivit. Vesperi. Quarto morbidie, Horæ septimæ Pomeridiana, mihi noctu ex ejus Arce domum redeanti Cœlum ad orientem serenum cum Luna splendente apparuit. Ad occidentem tectum Nube atra cum Pluvia. Iris a duplex erat in Nube, majoris et manifestioris, altera extremitas desinebat in Conclave, in quo E. C. mortua est. Altera erat in Campis. Iri altera erat veluti Rudimentum obscurius ut sæpe interdui a concavæ Nubis figura videre est."

It will be seen that these notes add to the six points already urged in favour of the disease having been typhoid fever.

The fever began gradually, and at first, as in so many cases of unrecognised typhoid, the patient makes himself worse by trying to move about. The whole character of the onset is that of typhoid fever. The same is true of the active form which the delirium takes. The account of the intestinal discharges is consistent with typhoid, but is obscured by the numerous purgative remedies given on purely theoretical grounds. The temperature, highest at night, sank towards morning. The abdomen was tense. The Prince died not later than the 27th day, perhaps earlier. He died exhausted. As to the sweating, which is described as greater than we are accustomed to see it, it must be remembered that we keep the windows open, while before Sydenham they were kept shut in the sick-room.

The precise anatomical appearances connected with typhoid fever are due to observation in very recent times, so we cannot expect to find ulcers of the ileum described, but the post-mortem is nevertheless important.

The post-mortem was made at 5 P.M. on the following day by the surgeons of the King and of the Prince, in the presence of the Elector Palatine and of many members of the court. I shall give the account of the post-mortem in a tabular form, using the Latin account¹ as the more accurate, and omitting no appearance described.

¹ The document in the Record Office State Papers, vol. lxxi. 29, differs in a few words only from that in Mayerne's works. It ends: "In quorum fidem præsentem relationem subsignavimus septimo Novembrio 1612. T. Maierne, Hen. Atkins, Jo. Hammond, Rich. Palmer, Jo. Gifford, William Boteler."

Skin.—Pale; no marks of injury. Some patches of redness about the loins, hips, and back of thighs, from his long lying on his back.

Abdomen.—Distended; subsiding on a small puncture being made at the umbilicus.

Stomach.—Healthy; quite natural.

Intestines.—Distended with air, otherwise not abnormal.

Liver.—Paler than natural; on its anterior and upper surface marked with dots, and on its inferior surface with black lines.

Gall bladder.—Empty.

Spleen.—Of a dark colour above and below; much distended with dark blood.

Kidneys.—Natural.

Diaphragm.—Below the pericardium (which contained less fluid than natural) stained with black.

Lungs.—Very dark in colour, and here and there spotted with black. Full of dark blood and blood-stained serum, which flowed out on section.

Heart.—Natural.

Brain.—The posterior cerebral sinuses distended with blood.

Ita sese habentibus præsens Testimonium Quibus.

Veritati consentaneum nostro confirmavimus Chirographo ipso Sectionis die, qui fuit Mensis præscripti septimus.

THE. MAYERNE, Reg. Medicus Primarius.
HAMMON, Medicus Ordinarius Principis.

BUTTLER.

ATKINS, Medicus Regius.

GIFFORD, }
PALMER, } Medici Londinenses.

Of these appearances the majority are due to post-mortem changes; the staining of the liver, spleen, and diaphragm from the escape of gaseous contents of the intestine through the peritoneum; the engorgement of the veins at the back of the head is an appearance of the same kind. The lungs were engorged and oedematous, as they are to be seen in patients with dorsal decubitus. Two appearances due to fever are, however, described—the enlarged spleen and the dry pericardium. There is nothing in the post-mortem against the hypothesis of typhoid fever; no description pointing to pneumonia, pleurisy, pericarditis, or tuberculosis, the only diseases associated with fever which at the Prince's age suggest themselves.

The description, meagre as it is, from the point of view of morbid anatomy, is clearly that of the autopsy on a case of

epidemic fever. The distension of the abdomen and of the intestines is positive, though not conclusive, evidence in favour of typhoid fever. That the enlargement and ulceration of the Peyer's patches in the ileum, now known to be characteristic of typhoid fever, are not described, is no more than to say that the morbid anatomy of typhoid fever was then unknown. What distinctive lesion is described at this day in a case of tetanus or of diabetes? I may add that I think it probable that the intestines were not opened. That the heart was exposed in the pericardium, but not itself opened, I gather from the following passage in the French account of the autopsy, an account containing the facts of the Latin note with explanations for the general public :—

"En faisant laquelle et couplant le Pericarde, pour montrer le Cœur, le chirurgien par mesguarde, ayant coupé le tronc de la grosse Veine, la plus grande partie du Sang se vuida dans le Thorax, laissant les Veines inferieures vides, dont la compagnie fut advertie sur le champ."

Returning to the account of the illness, the Prince's was one case of the epidemic fever of 1612. Of the epidemic fevers known then, which could it have been? Smallpox and measles were well known to the physicians of 1612. Dysentery was also recognised in those days, and no one thought the epidemic was the flux, a term in which dysentery was then included. The case does not run the course of scarlet fever. Typhus and typhoid fever remain, and typhus seems to me excluded by many symptoms, but chiefly by the gradual and not sudden onset. The diagnosis of typhoid fever is the only one which is consistent with an epidemic fever attacking several in one house, but not contagious and not obviously infectious, gradual in its onset, long in its course, with a temperature high at night, and lower in the morning, with an active delirium, with subsultus tendinum, with looseness of the bowels, with a distended abdomen, distended intestines, and an enlarged spleen. Taken together—and if not positively confirmed, at least in no way contradicted by the appearances after death—the symptoms prove Prince Henry to have died of typhoid fever; and it is due to the accurate observation of Sir Theodore Mayerne that his name should be in future remembered as the exact describer of the earliest case of typhoid fever on record in England.

TENDON-REFLEX IN THE LATER STAGES OF HEMIPLLEGIA.

BY

J. A. ORMEROD, M.B.

The tables give a series of fifty unselected cases of hemiplegia which have come under my care in the Out-Patient Room at Queen Square and in the Casualty Department. They are for the most part cases of some duration. The majority had recovered so far as to be capable of walking, and a few had got almost well. I have classified the cases according to the condition of the tendon-reflex, intending at first merely to inquire with what frequency this is exaggerated in the limbs of the hemiplegic side; whether such exaggeration is the rule or not; but subsequently to consider also the relation borne by exaggeration of the tendon-reflex to the phenomenon of rigidity; whether rigidity is always preceded by excess of tendon-reflex, and whether such excess is always followed by rigidity. The columns headed "Tendon-reflex" and "Rigidity" must therefore be considered the most important. The nature of the original cerebral lesion, so long as it be strictly unilateral, will not be of much consequence. For the leg, I give always the "patellar tendon-reflex," which is easily examined, and may be taken as the type of these phenomena; for the arm, that obtained by tapping the lower end of the radius. The muscular spasm which follows in this case, though not always noticeable in health, is readily appreciated when excessive; and further, the muscles concerned in it, chiefly the supinator longus and biceps, rank next to the flexors of the fingers with respect to hemiplegic rigidity.

If certain commonly held views¹ as to the nature of rigidity and of exaggerated tendon-reflex be true, the latter phenomenon

¹ Charcot, *Leçons sur les Localisations dans les Maladies de la Moelle*, xj sub. finem; xiv.; xv.

ought to be of considerable prognostic importance in hemiplegia. "Late rigidity" is said to consist in a persistent spasm of the muscles, caused by a pathological exaltation of their natural tone, such exaltation being due to overaction of the motor cells of the cord, which, albeit structurally healthy, are thus functionally disturbed. This functional disturbance of the motor cells is again connected with the anatomical lesion found in such cases, viz., sclerosis of the lateral columns of the cord; irritation of the cells is produced by disease of this, the normal path for volitional impulses to them. The intractable nature of such a lateral sclerosis harmonises well with the fact that well-developed rigidity rarely disappears. Now, since exaggeration of the tendon-reflexes (as also the associated phenomenon of ankle-clonus) is said clinically to precede the phenomenon of rigidity, and theoretically is referred to a similar irritation of the motor cells, the occurrence of it should count at least as a warning of impending rigidity.

It must be noted that this question is to a certain extent independent of the much-debated physiological nature of these tendon-reflexes. For even those who maintain¹ that they are not reflex actions, but spasms due to the inherent irritability of the muscle, excited directly by the drag of its tendon, admit, nevertheless, that the phenomenon ceases if the nervous connections with the cord be cut, and that it is modified by varying conditions of the cord; in short, that the irritability of the muscle depends on a reflex influence from the cord, being comparable in this respect to the normal muscular tone. We are thus brought round again to the connection between increased tendon-reflex and rigidity.

In Tables I. and II. there was on the paralysed side no excess of tendon-reflex, or at most a dubious excess in one or two cases. If we deduct two cases in which the limbs had practically recovered (Nos. 6 and 10), this leaves only 20 per cent. in which such excess was not present. None of these were of less than six months' duration—a sufficient time, one would think, for the phenomenon to develop. All the congenital cases, four in number (Nos. 3, 8, 10, 11) fall under these tables, and two cases (Nos. 4, 11) of athetosis.

Table II. appears to offer an anomaly, viz., tendon-reflex greater in the sound than in the paralysed limbs. Of the second of these cases (No. 12), which appeared to be an ordinary case of hemiplegia, I can offer no explanation. Dr. Buzzard was able to confirm the fact for me. The first of them (No. 11) was a congenital case, and subject to fits. With this may be com-

¹ See Waller, *Lancet*, July 16, 1881.

pared the last case in Table I. (No. 10). This man also had congenital hemiplegia, nearly well, and the tendon-reflexes were on a first observation equal on both sides. But he came to the Surgery one morning after having had some sort of fit in the night, and they were then greater on the sound than on the paralysed side. I believe this to point to some modification of tendon-reflex due to cerebral influence, and independent of sclerosis in the cord.

But as regards the main point, rigidity, in none of these cases was this present. So far, then, as the present observations are concerned, we may say that where there is no excess of tendon-reflex there is no rigidity.¹

Table III. contains the largest number of cases, viz., 64 per cent, and therefore seems to represent the commonest condition in hemiplegia of some standing, viz., exaggeration of tendon-reflex in one or both limbs of the palsied side, the other side remaining normal. In the first four cases the exaggeration was noted in the leg only; in the next three in the arm only. Yet, with the possible exception of Case 14, such stiffness as occurred was in the arm. Late rigidity is known to affect the arm first and principally, and this appears to be the case whether the excess of reflex be in the arm or leg. In the next twenty-five cases (Nos. 20 to 44) there was exaggeration in both arm and leg; in the majority of them (17 out of the 25) especially in those wherein the exaggeration was very great, there was more or less rigidity. So that it is tempting to draw the conclusion (the opposite of that drawn from Tables I. and II.) that where there is exaggeration of tendon-reflex there is also rigidity. But for the remaining eight cases we must at least modify this statement, and allow that the exaggeration of tendon-reflex, though possibly a warning of rigidity to come, is not necessarily followed by that event. At any rate, some of the cases (Nos. 20, 30, 32) were watched till the paralysis was practically well, no rigidity having occurred. In another case again (No. 29), the paralysis remained almost absolute in the arm and the tendon-reflexes in marked excess, yet the arm was quite limp thirteen months after the onset of the hemiplegia. Similarly in Cases 45, 48, 50, from the next tables, there was persistent and marked excess of reflex up to the eighth, thirteenth, and fifteenth months of the disease, without rigidity.

¹ Two possible exceptions to this statement suggest themselves:—1. Rigidity may be so great or so distributed as to prevent the jerk of the limb; thus if the hamstrings be rigid, the tap on the ligamentum patellæ may be followed by no extension of the leg. 2. Hemiplegia with rigidity may occur in the course of locomotor ataxy, and then there is no tendon-reflex on the hemiplegic side. See Buzzard, *Lancet*, September 24, 1881.

In Table IV. the tendon-reflex, though greater in the paralysed than in the sound side, was exaggerated in both sides. Such a statement is open to the objection that the phenomenon varies within considerable limits in healthy people, so that in speaking of exaggeration on both sides we lose the only standard of comparison, viz., that of the healthy side, which we have for that particular case. And this is true; but it must, nevertheless, be allowed that there is a limit beyond which the tendon-reflex must be considered excessive for any individual, just as it is allowable to speak of impairment of resonance on both sides of the chest. In the five cases here given, the sound leg was thus affected in three, the leg and arm in two. In one of them (No. 46), which appeared to be due to some old syphilitic lesion of the cortex, the possibility of a bilateral cerebral lesion may be advanced to explain the fact. For the rest, if we adopt the view that the excess of reflex is dependent upon lateral sclerosis, it does not seem easily explicable why the sound leg should suffer exaggeration of reflex rather than the sound arm. For the sclerosis develops from above downwards, becoming less marked as it descends in the cord, and rigidity also begins in the arm. Perhaps an extension of Broadbent's hypothesis may be made to meet the difficulty. On this theory the leg suffers less from the original palsy and improves sooner than the arm, because the normal movements of the two legs being less dissociated than those of the two arms, their lower (spinal?) centres are more closely connected, and the sound centre comes to the help of the paralysed one. But if these lower centres be also those which are concerned in the tendon-reflex, then, reversely, the lesion affecting it on the paralysed side would tend to affect it on the sound side. I would remark here that it is sometimes difficult, from the mere gait of a patient, to tell slight degrees of hemiplegia and of paraplegia apart; it seems as if the lesion were less marked in the leg than in the arm because spread over both legs.¹

The last case (No. 50) being exceptional, I have classed it alone, and give the notes rather more fully. The peculiarity is, that having begun as an ordinary right hemiplegia, the weak-

¹ Charcot, *Leçons sur les Localisations dans les Maladies du Cerveau et de la Moelle*, p. 252, supposes that some fibres of the lateral columns decussate anew in the dorsal region, so as to regain the side from which they started originally in the cerebrum, so that the spinal centres for the lower limbs would be connected with both sides of the cerebrum. He also alludes to the fact that paraplegia may eventually appear in the case of an unilateral cerebral or spinal lesion; and quotes instances from Dejerine of rigidity and ankle-clonus occurring in both lower limbs in cases of hemiplegia (p. 301).

ness spread during convalescence to the left leg, and that the tendon-reflexes were exaggerated and equal in all four limbs. It might very well have been taken (so far as the physical condition of the patient went) for an incipient stage either of spastic paraplegia or of amyotrophic lateral sclerosis. But the patient improved without the supervention either of rigidity on the one hand or of muscular atrophy on the other. Further, the complaint began, according to him, on the right side only, the palsy having been complete at first; and the condition of the skin-reflexes, which were mostly greater on the left than on the right side, seemed to bear out this statement.

Case 50, George C., at. 58, house-painter, came to the Casualty Department August 4, 1880. Had been laid up the preceding Christmas with right hemiplegia without aphasia. The paralysis was complete at the onset, but improved in the course of three months. The weakness, however, began to extend to the left leg, which, according to him, had been previously unaffected. Complains now of aching pain in the joints and of increasing weakness in right limbs and left leg. He can walk, and can use the right arm to a certain extent. No valvular disease; no albuminuria; no history of syphilis; no blue line on the gums. Tendon-reflexes much exaggerated everywhere; equal on the two sides. Muscles flabby but not wasted; no diminution in their response to the faradic current; no rigidity. Skin-reflexes (examined rather later on), from both soles, equal and well marked; cremasteric well marked on left side, absent on the right; abdominal the same. This man attended on and off till fourteen months after the onset of his paralysis. There was considerable return of strength, but no decrease of the tendon-reflexes, nor, on the other hand, any rigidity.

If any general conclusions are to be drawn, they are these:— In a few cases there is no excess of tendon-reflex on the hemiplegic side, and there is then no rigidity. In most cases there is such excess, and should it be marked and persistent, *generally* there is rigidity present or to come. The clinical association, therefore, of the two phenomena lends support to the view that they are dependent on the same cause; exaggeration of tendon reflex may be taken as a delicate indication of that condition which in an advanced stage causes rigidity. To the theory that this condition is a functional over-activity of the motor cells of the cord, little objection can be raised, except perhaps that it is incapable of anatomical proof or disproof. The anatomical lesion found in cases of late

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rigidity is lateral sclerosis. Yet there must exist cases of exaggerated tendon-reflex without lateral sclerosis, for this is a permanent and progressive lesion; whereas we have seen that there are cases of excessive tendon-reflex in which no rigidity supervenes. Still stronger is the argument that in the very earliest stage of an hemiplegia there may be increase of tendon-reflex, ankle-clonus, and even, as is well known, rigidity. Again, phenomena of the kind may appear in hysteria; or increased tendon-reflex and ankle-clonus may be present (as Dr. Jackson has shown¹), after an epileptiform, or even an epileptic fit, and disappear in the intervals. In such cases there is no anatomical spinal lesion, and we must look to some positive or negative cerebral influence on the cord as the cause of the phenomenon.

TABLE I.—*Tendon-Reflex Equal in Corresponding Limbs of Sound and Paralysed Sides (or Doubtful Excess at most in Paralysed Side).*

No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex of Sound as compared with Palsied Side.	Rigidity.	As regards Palsy.	Remarks.
1	56	6 months.	L.	In leg, slight excess?	None.	Got nearly well.	Embolism; observed for 6 months.
2	?	?	R.	In arm and leg, doubtful excess	Do.	Recovered, except use of hand.	Seen once only.
3	13	Congenital	...	Do.	Do.	...	Do.
4	59	10 years.	R.	In leg, doubtful excess.	Do.	Stationary; atrophy of hand for 3 last years.	...
5	59	3 years.	L.	Equal.	Do.	Improving at first, recovered completely.	Observed for 6 months.
6	67	12 months.	R.	Do.	Do.	Limbs nearly well, face and speech still affected.	Has had fits; seen once only.
7	62	11 months.	R.	Do.	Do.	Limbs flabby, almost powerless.	Seen once only.
8	11	Congenital	R.	Do.	Do.	Halts a little; hand tends to turn outwards.	...
9	47	15 months.	L.	Reflex absent at both knees.	Do.	Improving slowly.	...
10	25	Congenital	R.	Equal.	Do.	Nearly well.	A second observation after a fit showed reflexes greater on sound side.

¹ Medical Times and Gazette, February 12, 1881.

TABLE II.—*Tendon-Reflex Unequal, being greater in the Sound than in the Paralysed Side.*

No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex.	Rigidity.	As regards Palsy.	Remarks.
11	34	Congenital.	R.	Less in arm and leg of paralysed than in those of sound side. Nowhere excessive.	None noted.	Athetosis of hand, and slightly of leg.	Has fits. Two observations.
12	43	13 months.	R.	Slightly greater in palsied than sound arm. Normal in palsied, excessive in sound leg.	None.	Leg practically well; some use of arm and fingers.	One observation.

TABLE III.—*Tendon-Reflex Unequal—No Excess on Sound Side, but Excess in the Leg or Arm of Palsied Side.*

No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex of Palsied as compared with Sound Side.	Rigidity.	As regards Palsy.	Remarks.
13	70	6 months.	L.	Excess in leg only.	None noted.	Walks well; numbness & incomplete power in fingers.	Only once seen.
14	19	7 months.	R.	Excess (at first in both legs, finally) in palsied leg only.	Doubtful stiffness of leg.	Walks; fair use of arm. Improved steadily.	Observed for 8 months.
15	39	10 weeks.	L.	Excess in leg.	Slight stiffness of fingers (?), arm itself limp.	No recovery in arm or hand.	Seen on and off for a year.
16	64	23 months.	L.	Excess in leg only.	Fingers stiff.	Drags leg; can just use hand.	...
17	...	2 years.	R.	Excess in arm only.	Fingers a little stiff.	Walks slowly; arm powerless.	...
18	19	8 months.	R.	Do.	Doubtful stiffness of fingers.	Can use arm; cannot write.	Seen once only.
19	...	2½ years.	R.	Do.	Slight stiffness at shoulder.	Walks fairly; uses arm, not fingers.	Observed for 7 months; improved thro'out.
20	46	5 months.	R.	Excess in both arm and leg at first, but diminishing in leg.	None.	Incomplete from the first.	Practically recovered.
21	14	2 years.	L.	Excess in arm and leg.	Slight stiffness of thumb and elbow.	Drags foot; uses arm a little.	Seen once only.
22	70	5 months.	L.	Excess in arm and leg.	Slight, if any.	Walks fairly.	...
23	32	18 months.	...	Do.	Stiffness of fingers and knee.	...	Observed for a year; improved decidedly.
24	57	2 months.	L.	Do.	None noted.	...	Seen once only.

TABLE III.—*continued.*

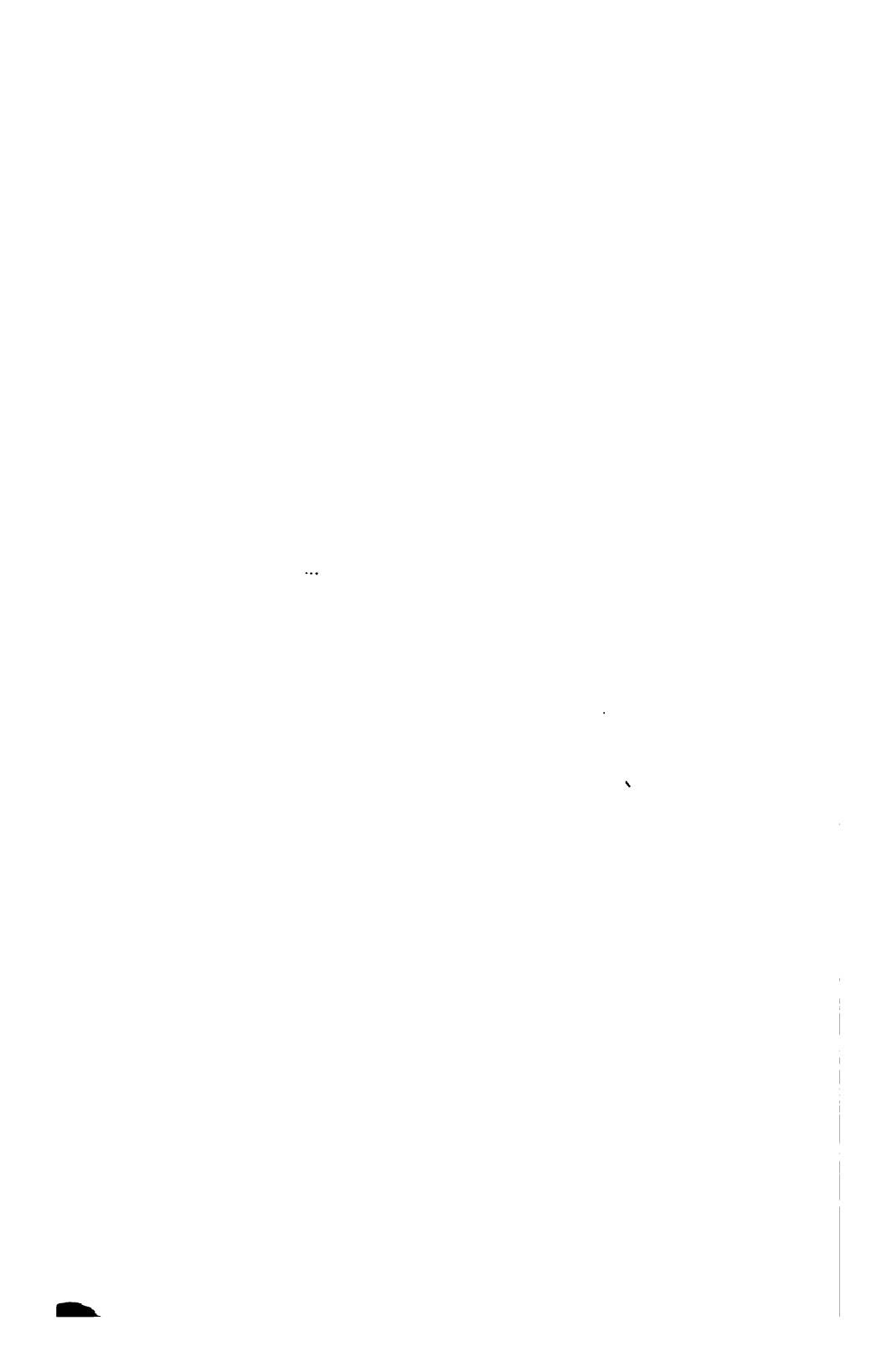
No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex of Palsied as compared with Sound Side.	Rigidity.]	As regards Palsy.	Remarks.
25	22	...	R.	Excess in arm and leg.	Some variable stiffness of fingers.	Walks fairly; cannot use fingers.	Observed for a year; improved; the leg got well.
26	67	3 months.	R.	Do.	None.	...	...
27	48	...	L.	Do.	Fingers contracted; some stiffness of arm.	...	...
28	48	9 months.	L.	Do.	Slight stiffness of arm and leg.	...	Albuminuria; convulsions.
29	51	4 months.	R.	Excess in arm and leg, becoming very marked in leg.	None; arm quite limp.	No recovery in arm.	Observed for 9 months.
30	32	17 months.	L.	Excess in arm and leg.	None.	Walks fairly; cannot use fingers.	Observed for 6 months; practical recovery.
31	66	3 years.	L.	Do.	Slight stiffness of elbow and knee.	...	Observed for 9 months; improved slowly.
32	40	1 month.	R.	Excess (which diminished) in arm; excess (which increased) in leg.	None.	Leg has improved much; has some power in fingers.	Observed for 7 months.
33	23	18 months.	L.	Excess in arm and leg.	Stiffness of fingers.	...	One observation.
34	...	Do.	L.	Do.	Some stiffness of fingers and leg.	...	Observed for a year: improved; the stiffness almost disappeared.
35	36	3 months.	L.	Do. (excess increased in leg.)	Slight rigidity of arm (increasing).	Slight drag of leg.	...
36	62	4 months.	R.	Excess in arm (?) and leg.	None.	...	Observations at 4 & 7 months.
37	47	5½ years.	R.	Excess in arm and leg.	Some stiffness of elbow and knee.	Nearly stationary.	Hemi-anæsthesia lasting for 3 years; involuntary movements of foot.
38	23	3 months.	L.	Excess in arm, much excess in leg.	Fingers stiff, slightly flexed; slight stiffness on extending knee.	...	One observation.
39	38	5 months.	L.	Excess in leg, much excess in arm.	Slight stiffness of arm.	...	Do.
40	55	9 months.	L.	Do.	Rigidity beginning in arm.	...	Observed for 3 months; stationary.
41	...	6 years.	R.	Do.	Rigidity of fingers.	Leg nearly well.	Seen once only; has fits.
42	43	3 months.	L.	Do.	Fingers became flexed.	Walks slowly (at first could not close hand).	Observed for 4 months; improved in the leg.
43	31	2 years.	R.	Excess in leg, which became extreme; much excess in arm.	Fingers and elbow rigid; leg held stiffly on walking.	...	Observed for 11 months.
44	30	2 years.	L...	Much excess in arm and leg.	Rigidity from fingers to elbow; leg not stiff.	...	Observed for 13 months; improved except fingers.

TABLE IV.—*Tendon-Reflex Unequal; greatest in Paralysed Side, but exaggerated also in Sound Side.*

No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex.	Rigidity.	As regards Palsy.	Remarks.
45	42	5 months.	L.	Excess in palsied arm, which became extreme. Excess in palsied leg, which increased and then diminished. Excess in sound leg at 7th and 8th month.	None.	Leg dragged; moves arm at shoulder only.	Observed 10 months; improved, arm more than leg.
46	40	7 years 6 months (respectively).	L.	Excess in palsied arm. Excess (equal) in both legs.	Arm held stiffly.	Leg dragged.	Two attacks, preceded by convulsions; optic atrophy; syphilis.
47	51	13½ years.	R.	Excess in palsied arm. Excess (equal) in both legs.	Fingers contracted.	...	Embolism.
48	51	8 months.	R.	Excess in sound arm; much excess palsied arm. Excess (equal) in both legs.	None.	...	Still has hemianæsthesia.
49	46	2 years.	L.	Excess at first in palsied arm only, then in both; excess (equal) in both legs.	Some rigidity both of palsied leg and arm.	...	Renal disease.

TABLE V.—*Anomalous Case—Tendon-Reflexes Equal—Exaggerated in all Four Limbs—Extension of Weakness to Sound Leg.*

No.	Age.	Duration when first seen.	Side of Palsy.	Tendon-Reflex.	Rigidity.	As regards Palsy.	Remarks.
50	58	9 months.	R.	Excess, which became extreme, in all four limbs.	None; muscles flabby, not wasted.	Incomplete now, but both legs are weak.	Observed for 6 months; improved.



A

CASE OF ACUTE TRAUMATIC TETANUS.

BY

F. SWINFORD EDWARDS.

Excision of a Portion of the Short Saphenous Nerve— Recovery.

Acute tetanus being one of the most fatal of surgical disorders, I desire to place the following case of recovery from the same on record.

(For most of the notes I am indebted to Mr. Wright, late house-surgeon of the West London Hospital.)

Rhoda M. L., ~~set.~~ 10 years, an unhealthy-looking child, who looked younger than her age, was brought to the West London Hospital on June 12, 1880, the wheel of a cart having passed over her foot.

She had a contused wound about $2\frac{1}{2}$ inches in length, of a horseshoe shape, at the back of the heel. The wound was dirty and the flap of skin turned back. Although much frightened, she did not appear to have suffered any further injury.

The wound having been washed, the edges of the skin were brought together with sutures, and a dressing of carbolic oil lint applied. The patient was taken home by her mother.

When the child was next seen, it was found that the flap of skin had sloughed and the wound was gaping. The mother stated that the child was in her usual health, and suffered but little pain. Poultices were ordered, and after a few days the wound began to granulate, and the mother ceased bringing the child for a week, on account of the distance she had to come.

On June 25, the thirteenth day after the accident, the mother brought the child again, stating that she could not open her

mouth, and that she was very ill. The wound was healed, with the exception of an unhealthy heaped-up ridge of granulations. The jaws were fixed, and the patient complained of pain in the back, but had no spasms.

Through prejudice the mother would not leave the child in the Hospital, so she was ordered to poultice the wound, and a purge was administered.

The next morning—June 26—the child was brought again, being very much worse. She complained of much pain in the back, headache, inability to open her mouth to any extent, and general tetanic spasms, throwing the child into a position of opisthotonus. The aperient powder had not acted, and she was in this very distressed condition when the mother consented to leave her in the Hospital, and she came under my care.

Seeing that the wound was in that part of the skin which is supplied by branches from the short or external saphenous nerve, I decided to cut down upon and excise a portion of this nerve.

With as little delay as possible the patient was placed under the influence of chloroform, and an incision having been made over the position of the short saphenous nerve in the back of the calf, it was soon exposed, and the operation completed by removing about $1\frac{1}{2}$ inches of the nerve.

Three grains of calomel were given, and a mixture ordered containing five grains of chloral hydrate every three hours.

A Chapman's spinal ice-bag was applied to the whole length of the spine. Milk, eggs, beef-tea, and 2 oz. of brandy daily was the diet she was placed on.

June 27.—Temperature 99.2°. Pulse 110. Bowels have been freely acted upon. The spasms are more violent, and recur about every twenty minutes. The pain in the back troubles her. Has slept heavily and looks very distressed. Chloral mixture continued, and a poultice applied to the original wound.

June 28th.—Temperature 99°. Pulse 110. Slept all night. Bowels open freely. The spasms are very slight. Cannot open her mouth. Still complains of pain in back. The *risus sardonicus*, which was well marked on her admission, still continues undiminished.

June 29.—Temperature 99.8°. Pulse 120. Says she feels better. Her jaw is slightly relaxed. She has spasms only when startled or on waking. Pain in back better.

June 30.—Temperature 99.4°. Slept well. Spasms less violent. Pain in back better.

July 1.—Temperature 98.4°. Pulse 106. Spasms not so severe. Takes her food better.

July 2.—Temperature normal. Pulse 100. Has no spasms. Can open her mouth slightly, but cannot protrude tongue. Eats and sleeps well. Has hardly any pain in the back. Appearance of face better. Ice still applied day and night to back. The chloral draught to be discontinued, and the following mixture substituted:—Syr. ferri. phos. co. ol. morrhuae, $\ddot{\text{a}}\ddot{\text{a}}$. 3*i.* t.d.s.

July 3.—Temperature normal. Pulse 100. Better in every respect, but the incision over calf is ulcerating.

July 12.—Temperature and pulse normal. Can protrude tongue easily. Her general appearance has much improved during the last week. She still has a little pain in her back at night.

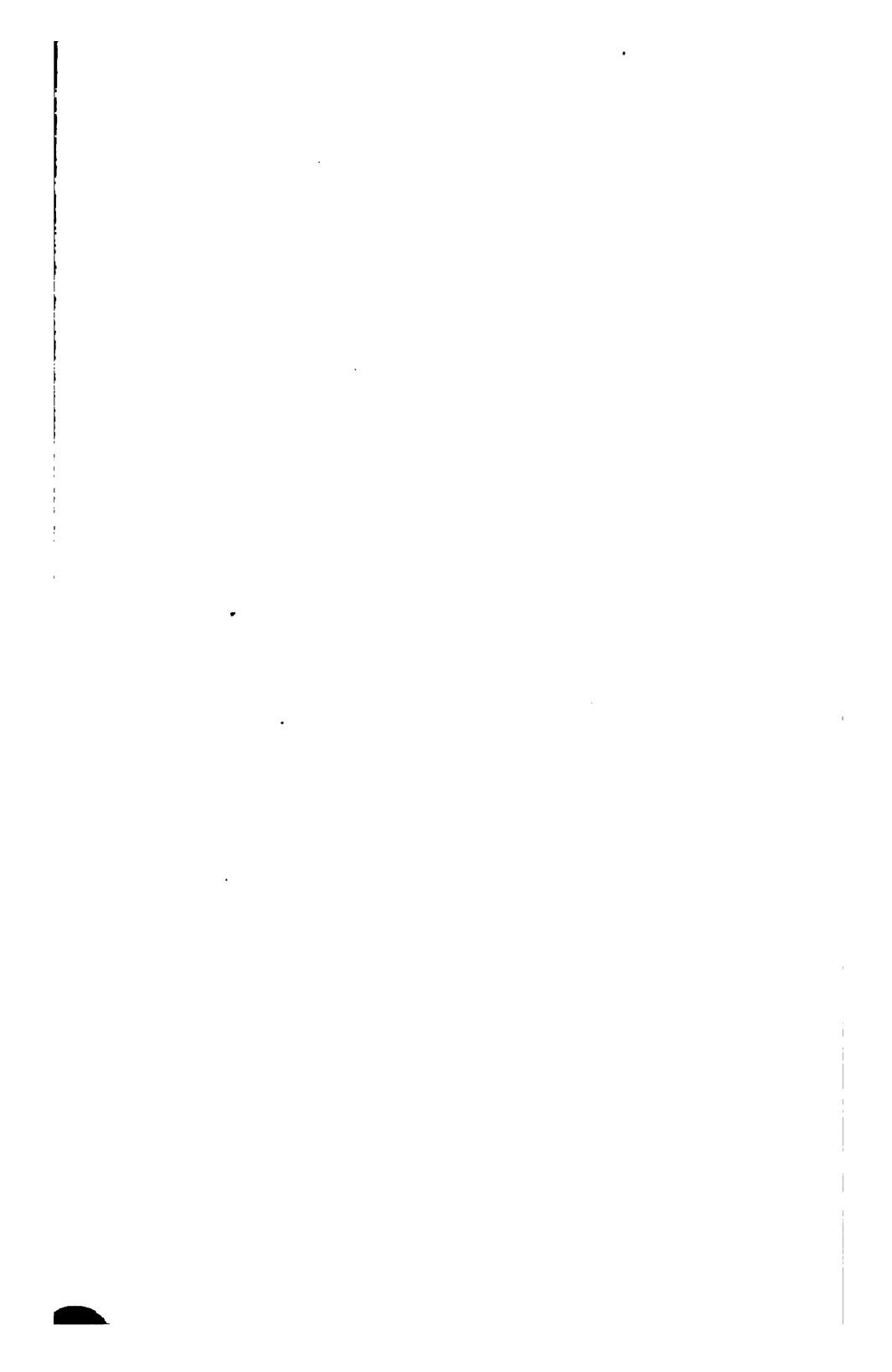
July 17.—Both the wounds are healed. Sensation, which had been modified, has now completely returned to outer side of foot and of little toe.

The little patient appears quite well, though her face has still a peculiar look about it.

Soon after this she left the Hospital quite well, and I neither saw nor heard anything of her till a year afterwards, when, at my request, her mother brought her to see me. I found her quite an altered child, grown considerably, and in robust health; in fact, her mother said she had never enjoyed such good health before.

The original wound having been limited to the skin and subcutaneous tissue, it was an easy matter to determine what nerve, if any, to excise. The spinal ice-bags were an important element in the treatment, as was also the chloral, both allaying central irritation, though in a different manner.

In conclusion, I would raise this question—Is not the favourable termination of this case due, if not entirely, at all events partly, to the fact that the operation was performed early in the course of the disease?



OUR MUSEUM AND ITS ASSOCIATIONS.

BY

FREDERIC S. EVE,

LATE CURATOR OF THE MUSEUM.

The present appeared to be a favourable opportunity for writing an account of the origin, contents, and associations of the Museum of St. Bartholomew's Hospital; for in the changes consequent on the formation of a completely rearranged catalogue of the pathological collection, and in the removal of the specimens to the new Museum, many time-marks must necessarily have been obliterated.

In 1726 we have the earliest record of the existence of a Museum, when a room was provided for a museum of anatomical or chirurgical preparations, which was placed under the charge of John Freke, then assistant-surgeon to the Hospital, and previously assistant-surgeon to Queen Anne. The following resolution with regard to this room appears in the Minutes of the Governors, dated June 23, 1726, which Mr. Cross was kind enough to obtain for me :—

“ Two convenient rooms being prepared under the Cutting¹ Ward, one for the more decent laying the dead patients before the burial, the other a repository for anatomical or chirurgical preparations, it is ordered that the Sister of every Ward do for the future by the Beadles lay the dead patients in the room aforesaid, and that the Sister of the Cutting Ward do keep the key of the Dead Room. It is likewise ordered that whatever preparation shall be given to the repository shall be numbered, and the name of the person who gave it and the history of it be entered in a book to be kept at the Compting-house for that purpose, and that Mr. Freke do keep the key of it, who shall be account-

¹ The Surgeons were then paid “six and eightpence” for each operation for stone in the bladder.

able for the loss of any preparation ; and when he shall decline it, the youngest Assistant-Surgeon shall do the same."

From this document we may safely presume that this is the oldest public anatomical museum in London.

It is at the present time impossible to identify any of the old specimens preserved at that time ; many of them have doubtless been destroyed. Freke has, however, left behind him an enduring evidence of his mechanical skill in the carved gilded chandelier now hanging in the Steward's Office. It bears the following inscription :—"Johannes Freke, hujusce nosocomii chirurgus, MDCCXXXV."

The earliest specimen of which we have any information is a congenital hernia, dissected by Percival Pott, surgeon to the Hospital from 1749 to 1787. It was probably prepared before 1756, when he published the essay on Congenital Hernia—his first work. Other specimens which belonged to Pott will be subsequently referred to.

The Museum was largely increased by the private collection of Abernethy, who became assistant-surgeon on the retirement of Pott, and lectured on anatomy, physiology, and surgery in the theatre erected for him by the Governors in 1791.

In a series of representations urging the Governors to rebuild the anatomical theatre, which were submitted by Mr. Abernethy to a House Committee, April 18, 1821, he offered to make over his valuable collection of specimens of morbid anatomy to the Hospital in case of their compliance with his wish. The following is an extract from the Minutes of the House Committee :—

"7. Mr. Abernethy, on his own part, begs permission to add that, from the first formation of the Medical School, he has collected specimens of various diseases and injuries for the instruction of students, amounting in number to several thousands, and the collection is considered by those who have viewed it to be both ample and interesting. He has also endeavoured to get established a Medical Library for the use of the students ; and the Surgeons have contributed annually a sum of money for the purchase of books. The library has now become of considerable extent and value, and nominally belongs to the Medical Society of the Hospital. Both the collections of preparations and books should, in Mr. Abernethy's opinion, become the property of the Hospital, in trust for the use of the Medical School which the Governors have established, and which it is his earnest desire to improve and propitiate."

At a sub-committee held on the 26th of May 1828, Mr. Abernethy and Mr. Stanley made a [formal] tender of the preparations

and all the other property in the Museum to the Hospital by the following document :¹—

"We, the undersigned, engage to give up the preparations, and all the other property in the Museum, to the President, Treasurer, and Almoners of St. Bartholomew's Hospital for the time being, for the use of the Medical School; and we also pledge ourselves carefully to preserve the same, to keep the preparations in a state of good preservation, to supply new ones for those that decay, in a manner adequate to the instruction of students in all the facts of anatomy usually exhibited in this manner, and to put up specimens of every interesting occurrence relative to disease and accident which may be met with in the practice of the Hospital, so long as we continue to teach anatomy and physiology in the school of the Hospital.

"We also engage not to make any separate collection, but to add all the preparations and drawings which we may procure to those in the Museum, in order to make that collection as ample and useful as possible.

"JOHN ABERNETHY.
"EDWARD STANLEY.

"St. BARTHOLOMEW'S HOSPITAL,
May 3, 1828."

The offer and conditions were accepted at a General Court of the Governors held July 23, 1828. One of the conditions appears to have been the formation of a catalogue, for in July 1829 Mr. Stanley, on behalf of Mr. Abernethy and himself, attended and presented to a Court of the Governors a catalogue of the preparations contained in the Museum, by whom it was ordered to be printed. It was published in 1831; a copy may be seen in the Library of the Royal College of Surgeons. The Museum had already attained considerable size, for this catalogue is a quarto volume of 200 pages; and in turning over its leaves, one observes many of the most beautifully prepared physiological and many interesting pathological specimens, among them being the best of Stanley's preparations.

The gynaecological and associated series had also been greatly enriched by the addition of the collection of Dr. Conquest.

A brief allusion to some of the descriptions in this catalogue will serve to remind the reader of the enormous advance which pathology has made in the last half-century. The true nature of the specimens referred to was easily ascertained by tracing them to the later catalogue, and by examination of the specimens themselves.

The syphilitic nature of many specimens of osteitis and periosteitis affecting symmetrical or many bones was not recognised.

¹ Extract from the Minutes of a House Committee, confirmed at a General Court of Governors, held July 23, 1828. Printed in Catalogues 1831 and 1846.

Writing even so late as 1849 (*Diseases of Bones*, p. 21), Stanley makes the following remarks with regard to these specimens:— “In several instances I have been able to ascertain that the individuals in whom these conditions of the bones existed, had suffered in their limbs the long-enduring or many times recurring attacks of rheumatic [syphilitic] inflammation.”

A specimen of “pulpy degeneration” of the synovial membrane of a knee-joint is described as “a peculiar alteration of structure of the synovial membrane.”

Many specimens of chronic rheumatic arthritis are described as specimens showing “absorption of the articular surfaces, with osseous deposition around the head of the bone.” No name, or reference to their nature, is anywhere given to this very distinct form of joint-disease.

The nature of some very typical tubercular ulcerations of the intestine was apparently not recognised.

Specimens of typhoid ulceration of the intestine are described as “enlargement and sloughing of the mucous glands.” Even in the catalogue of 1846 these specimens are described as typhous ulceration, since it still remained for Sir William Jenner to differentiate typhoid and typhus fevers.

Very typical specimens of cirrhosis of the liver are described as follows:—“A liver exhibiting a white or yellow interstitial deposition through its substance.”

As might be expected, there are no specimens of amyloid disease nor of nephritis.

The tumours are described, according to their naked-eye appearances, as fleshy, medullary, &c.; and when ulcerating and protruding through the skin, as fungus growths, fungus haematoïdes, &c. A specimen of melanotic sarcoma of the liver is described as “numerous depositions consisting of soft cellular tissue filled by a black fluid.” Epithelioma is usually spoken of as a “vascular fungus.” The following description of a scirrhouous cancer of the mamma shows that the class of cancerous tumours was not well defined, viz., “Sections of a mammary gland exhibiting the peculiar change in structure usually considered to be cancerous.”

The term tubercle is applied indifferently to small nodules of new growth as well as to true tubercle. Many other instances might be cited, but these I think are sufficient to indicate the position of pathology at that period.

Sir James Paget informs me that when he became a student at the Hospital the Museum was a room adjoining the carpenter's shop of that time. Many of the shelves bore the notice “Oculis non manibus,” which was witty reversed by the obste-

tric physician of the time in his advice to his class. The site of this room was included in the old Museum, which was erected in 1835, with only one gallery. As the collection grew it became necessary to add a second gallery, and a wing for the *materia medica* and physiological specimens was built in 1854.

Mr. Stanley, the successor of Mr. Abernethy to the lectureship in anatomy and physiology, had for many years the charge of the Museum. Than he, probably no other man has done more to enlarge and enrich the collection ; and his beautifully injected preparations will probably not be surpassed with our present methods of preparation. A Mr. Bayntin, who executed many excellent drawings, was subsequently curator for a short time.

Sir James Paget became curator in 1839, and he retained this office after his appointment to the lectureship in physiology in 1843. The multifarious nature of his duties when he first became curator, and the zeal with which he threw himself "into the work which lay nearest to hand," may be estimated by the fact, that he articulated two complete skeletons, that of a negro, 6 feet 4 inches in height, and the skeleton of a dolphin. There is also a very good drawing (No. 222) by him, representing the appearances in the stomach after poisoning by impure carbonate of potash. The negro had for many years been employed as a sandwich-man in Holborn, and he frequently came to the Hospital Surgery for severe tertiary syphilis. He died after amputation through the thigh by Mr. Earle for syphilitic ulceration of the leg ; his skeleton, No. 298, shows syphilitic osteitis and periostitis of all the long bones.

Owing to an increase of over a thousand specimens in the Pathological Section, a new catalogue became necessary, which was prepared by Sir J. Paget, and published in 1846. The arrangement of the specimens adopted by Mr. Abernethy and Mr. Stanley was little deviated from, as this was thought most convenient for a Museum to which every year brought numerous additions. The specimens therefore remained grouped in series corresponding to the principal organs and structures of the body, but otherwise having no specific arrangement ; and for the most part placed in the order in which they had been added to the Museum. But a very important improvement was made by the insertion of an index at the commencement of each series, and a table of references to specimens illustrating general pathology.

The Physiological and Zoological Sections having been doubled in the twenty years succeeding the publication of the first catalogue, a new catalogue of these was prepared under the same auspices, and published in 1851.

In 1862 an appendix to these two catalogues was formed by

Mr. Savory, who succeeded Sir J. Paget in the lectureship on physiology and to the curatorship of the Museum ; it contains more than a thousand new preparations, and the collection of the late Dr. Farre, presented in 1856, including the original preparations of Dr. Jones, from which the illustrations of his work on haemorrhage were taken. It is characteristic of the times that Dr. Farre conducted a large general practice in Charterhouse Square.

These catalogues have continued in use until the present time.

During the nineteen years which have elapsed since the publication of the above-mentioned appendix, nearly 900 preparations and 497 drawings and casts have been added to the Pathological Section ; and a large collection of pathological microscopic specimens, the majority of which were taken from specimens in the Museum, recently preserved or re-examined. The Pathological Collection now numbers more than 3400 specimens, exclusive of 319 calculi, 235 casts, about 200 pathological microscopic specimens of different structures, and 600 drawings.

In preparing the new pathological catalogue, just about to be published, the opportunity has been taken to completely rearrange and revise the collection. The specimens have been classified, and so arranged as to illustrate the various morbid processes affecting the different structures of the body ; and in order to accomplish this, the dry specimens, before placed in a separate series, have been interspersed with the moist. Eighty-eight of the preparations from Dr. Farre's collection, which were considered worth preserving, have also been included in the general collection, with his name appended. A series of general pathology has been formed, and the specimens have been re-numbered consecutively throughout the collection.

I have so frequently been asked by visitors and others to point out the chief features of the collection, that a brief reference to some of the most interesting specimens, especially to those having historical associations, will not, I conclude, be uninteresting to the readers of these Reports. In doing so, the specimens will be referred to under their new numbers.

The first specimen (No. 14) which arrests attention in the excellent series of Diseases of Bones, is a very remarkable example of absorption and expansion of bone by pressure. "The base of the skull from an elderly woman, who appeared to have been long in the habit of wearing a plug to close an opening in the palate. The opening, gradually enlarging, has attained such a size, that nothing remains of the palatine portion of the superior maxillary and palate bones, and the alveolar border of the jaw

is reduced to a very thin plate, without any trace of the sockets of the teeth." Portions of tape had been wound around the cork in order to accommodate it to the increased size of the opening. This specimen was obtained from the dissecting-room.

Next follows a series of twelve beautifully injected preparations illustrating necrosis and repair after necrosis, obtained from experiments performed by Mr. Stanley (*Diseases of Bones*, p. 86 *et seq.*, plates viii. and ix.) They served to confirm and considerably extended the experiments and observations of Hunter and Syme on this subject.

Among the many remarkable specimens in this series the following deserve notice. Nos. 73 and 74, the skull-cap, femur, and tibia from the unique case of *osteitis deformans*, described by Sir James Paget (*Med. Chir. Trans.*, vol. ix.) No. 102, referred to in his "Lectures on Surgical Pathology :" "A left tibia, nearly an inch longer than the right, owing to its increase in length it has become curved; its ends, confined by their attachments to the fibula, having been hindered from separating more widely." These changes were probably the result of chronic *osteitis*.

No. 114, presented by Dr. Roupell:—Various bones from cows, on all of which are numerous *osteophytes*. The cows were fed in meadows near some arsenic works, and it is presumed that these changes were the result of impregnation of the air, or their food, with arsenic. (See Stanley's *Diseases of Bones*, p. 76.)

No. 167 is a unique specimen of necrosis of the whole shaft of the femur without suppuration, described by Mr. Morrant Baker (*Med. Chir. Trans.*, vol. ix.)

No. 177 shows necrosis of the whole of the upper and back part of the skull of a lunatic, who attempted to commit suicide by placing his head on a fire. The process of exfoliation of the bone lasted eighteen months, but a complete cicatrix formed. "When he recovered, the patient, though still insane, did not again attempt to destroy himself." This case occurred in Bethlehem Hospital while Sir William Lawrence was surgeon to that institution, and he watched this man for years, until, on the patient's death, he obtained the skull for the Museum.

Repair of bones is well illustrated by two specimens (Nos. 245 and 246), showing very perfect repair of the lower jaw after complete necrosis from the inhalation of the fumes of phosphorus. The necrosed bones themselves are also preserved. These cases were described by Mr. Savory (*Med. Chir. Trans.*, vol. lvii.)

Absence of repair is shown in a remarkable specimen, No. 164, a tibia, from which a portion of the shaft nearly four inches in length separated after necrosis. Its atrophied extremities

are united by a band of tough ligamentous tissue containing no bone.

In No. 265 we have a rare specimen of arrested growth of the femur from necrosis of the extremity of the diaphysis and of the intermediary cartilage; and circumscribed necrosis in this situation, which has hitherto attracted little attention, is further illustrated by specimens Nos. 67, 68, 69, 71, and 574, referred to in a paper in vol. xv. of these Reports.

The collection of syphilitic diseases of bones is very numerous. Among them are two specimens (Nos. 342, 343) of syphilitic caries and necrosis of the skull, "taken from patients who died in the venereal wards of the Hospital while Mr. Pott was surgeon." Mr. Abernethy speaks of these specimens in his "Lectures on Surgery," 1830, p. 164, as follows:—"In different crania which Mr. Pott had preserved, and which he gave to me, many venereal ulcers are to be seen, some of them so deep as to have exposed the dura mater." He adds, "Such specimens cannot, I believe, be obtained now, for the venereal disease appears to have been in a great degree exterminated, or is not suffered to proceed any great lengths, in consequence of the remedy (mercury) being so generally and immediately employed." These remarks of Abernethy's lead me to infer that such specimens as Pott had preserved came into his possession. Some of the other syphilitic crania were probably derived from the same source, as he speaks of "different crania." It may be presumed that Pott had formed a private collection, for he lectured on surgery for many years at his own house, as related by his nephew and biographer, Sir James Earle (Life of Percival Pott). There are also two other specimens in the Museum which are distinctly stated to have been his—the congenital hernia already mentioned; and a specimen of caries of the dorsal region of the spine, No. 1097, of which Stanley states that "the patient was under the care of Mr. Pott, and had paraplegia and other signs of 'Pott's disease' of the spine and spinal cord. It was one of the first cases which showed the benefit of issues in the treatment of the disease; for under their influence the paraplegia and other symptoms were completely removed, and the patient recovered so as to walk with ease. He died with phthisis." The above particulars were related to Stanley by Abernethy, who remembered the case (see Stanley's Diseases of Bones, p. 326, and plate xxi.) This is probably the spine of the boy whose case is related at p. 248 of Pott's collated works. Another specimen, No. 1096, is probably that from which plate i. in Pott's essay was taken—a portion of the dorsal region of a spine showing destruction of the bodies of

eight vertebrae, with approximation of the vertebrae above and below them. The plate is referred to at p. 289 (*op. cit.*), but unfortunately no account of the case is given.

For the benefit of those who have not had the opportunity of reading Pott's works, I may mention that he worked out the pathology of angular curvature, previously believed to be due to dislocation or displacement of the vertebrae, and successfully treated the paraplegia associated with it by setons and issues in the back on either side of the curvature. His essay on this subject was published in 1779.

Recurring to Abernethy's remarks with regard to the above-mentioned crania, we observe that he attributes the extent and severity of the disease to the absence of mercurial treatment, whereas in the present day it is usually ascribed to the combined effects of syphilis and the excessive administration of mercury. That Abernethy had a better opportunity of judging than we have, there can be no doubt; and that extensive syphilitic disease of the bones still occurs, though probably not from mercurial cachexia, is shown by the recently added specimens, Nos. 322A, 332, and 341.

In this group will also be found two adult skulls (Nos. 348, 349) with great thickening of the bone over the parietal eminences, and a depression between them in the line of the sagittal suture. This condition corresponds to the form of skull produced in some cases by congenital syphilis, and described by M. Parrot as the "natiform" skull. They are the only old specimens in the Museum which can be regarded as the result of this disease. Stanley was of the opinion that the thickening in these skulls was due to rickets (*Atlas of Diseases of Bones*, plate ii. fig. 2).

Tumours of bones are extremely well represented, and the majority having been examined with the microscope, they admitted of minute classification; in many cases the microscopic sections are preserved. Among osseous growths is a curious instance of spontaneous necrosis and separation of an osteoma occupying the antrum (No. 399). Also two specimens (Nos. 370, 382, 383) of multiple exostoses, in the former of which there is a remarkable hereditary history. "The patient's father, an otherwise healthy man, forty years old, had many tumours of the same kind on various bones, which had all commenced in early childhood, and ceased to grow when he attained his full stature. Similar tumours also existed on the bones of this man's cousins, viz., of three sons and one daughter of his mother's sisters."¹ In these cases it is said that the disease does not usually appear in the females, although

¹ Case related in Stanley's *Diseases of Bones*, p. 213.

it is transmitted by them to their sons. This belief is to some extent, though not completely, borne out in the history of the above case.

There are also several specimens of multiple enchondromata of the hands; some of these tumours were congenital, or began to grow in early life, and ceased to enlarge when the patient attained his full stature; facts exhibiting a close relation between the conditions causing and influencing the growth of the enchondromata of bones and of the nearly allied exostoses. One of these specimens was presented by Mr. Salmon.

Nos. 441, 474 to 476, and 501 to 506, were taken from cases of pulsating tumours of bones related by Mr. Stanley in a paper in vol. xxviii., Med. Chir. Trans. In two of these cases the symptoms so closely resembled aneurism that the common iliac and femoral arteries were respectively tied.

An enormous osteo-sarcoma, surrounding the shaft of the femur (No. 517), is, I find, referred to by Abernethy in his "Lectures," p. 173, under the heading of "Fungus Ossium." He says, "In a case of this description, where the disease occurred in the thigh, I made an issue at its commencement, and whilst yet uncertain of its true nature, supposing it might be an irregular deposition of earthy matter in consequence of internal disease of the bone. When, however, from the unabating progress of the disease, I became sure that it was a case of fungus ossium, I proposed amputation; but this not being submitted to, the patient continued to linger for about four years, when he died. The bulk of the limb was enormous, and the bony fungus is still of amazing extent," &c. This tumour is almost matched in size by the next specimen to it, an osteo-sarcoma of the tibia and fibula.

There are three rare specimens of cystic disease of the lower jaw (Nos. 535 to 537). The case, from which No. 537 was taken, was related by Mr. Holmes Coote in the "Lancet," October 10, 1857. This disease has hitherto been described as cystic sarcoma, but I have found that it is due to an ingrowth of epithelioma from the gum into the jaw, the cysts being produced by the colloid degeneration of the cells of the epithelioma. This observation has, I find, been recently confirmed by Büchtemann (Centralblatt für Chirurgie, May 28, 1881). In our recent specimen (No. 535), the origin of the disease was probably due to the irritation of the carious fang of a tooth.

No. 539 is probably one of the earliest described specimens of dentigerous cyst. It was operated upon by Mr. Earle under the impression that the disease was malignant (Stanley, op. cit., p. 269).

Finally, as rarities in this series may be mentioned a specimen (No. 543) of nævus affecting the skull-cap of a child which, among others, is cited by Mr. Stanley (*Treatise on Diseases of Bones*, p. xi.), as evidence that "bone is amenable to the same disturbing influence as the soft organs and tissues." Also an ilium and sacrum (No. 541), expanded and excavated by hydatic, which had even passed into the spinal canal (op. cit., p. 191).

In the series of Diseases of Joints there is little worthy of note, except several specimens of symmetrical joint-disease described by Sir J. Paget in his original paper "On the Relation of Symmetry and Disease" (*Med. Chir. Trans.*, vol. xxv., 1842), in which he adduces facts and arguments "sufficient to render it highly probable that it is a law of the animal economy that, when uninfluenced by disturbing causes, all general and constitutional diseases affect equally and similarly the corresponding parts of the two sides of the body." In proof of this law of symmetry, which has now become a recognised fact, specimens are referred to of symmetrical destruction of the ligamentum teres and ulceration of the cartilages of the hip-joints; of symmetrical rheumatic and gouty diseases of joints; and of symmetrical exostoses on the extremities of dogs. (See Catalogue, p. 98.)

There are five specimens (p. 102) of erosion of the intra-capsular portion of the tendon of the biceps with adhesion of the tendon to the bicipital groove, and one (No. 1186) of displacement of the tendon from the groove; conditions which Mr. E. Owen has shown to be due to chronic rheumatoid-arthritis (*Med. Chir. Trans.*, vol. lviii.). Three of these specimens (Nos. 704, 705, and 1186), apparently obtained from the dissecting-room, correspond to the descriptions of those cited by Stanley in a paper "On Rupture of the Tendon of the Biceps" (*Lond. Medical Gazette*, vol. iii. p. 14). They were brought forward by him as instances of this lesion, and were described as such in the former catalogues. The heads of the humeri, however, show distinct evidence of rheumatoid-arthritis. Mr. Stanley's communication originated from a paper on the subject (*Lond. Med. Gazette*, vol. i. p. 404) by Dr. Knox, who undoubtedly considered the condition to be the result of "disease" in the joints. In Dr. Knox's paper dissecting-room specimens are described, in many of which the shoulder, and in some instances other joints, were affected with rheumatism. Another specimen (No. 706) precisely answers to the description of, and is probably that described by, Mr. Smee (*Lancet*, 1845) of the Aldersgate School of Medicine. In this, an articular surface existed between the under surface of the

acromion and great tuberosity of the humerus, as the result of their approximation, owing to destruction of the tendon of the biceps.

In the next series the following require a passing notice:— Specimens illustrating repair of fractures (Nos. 769 to 775), obtained by a series of experiments on dogs performed by Mr. Stanley. Two of these show perfect repair of the bone after the removal of a portion of the whole thickness of the shaft of the radius of a dog, the periosteum being carefully preserved; another specimen shows that in a similar experiment, in which the periosteum was removed, the ends of the divided bone are only united by connective tissue; there was, however, a remarkable compensatory thickening of the ulna at a point corresponding to the division of the radius. (See *Treatise on Diseases of Bones*, p. 102.) These experiments had, however, previously been performed by Syme. A specimen (No. 793) showing perfect repair of an intra-capsular fracture in a man aged eighty years, described by Mr. Stanley. A specimen (No. 847) of intra-capsular fracture of the femur, with inversion. "In the suspicion that dislocation existed, repeated attempts at reduction were made;" also recorded by Mr. Stanley. No. 809, "a portion of a skull, in which a trephine-hole, made thirty-four years before death, has been nearly filled up by new bone. The patient, a sergeant of marines, was struck on the head with a tomahawk at the taking of the Danish fleet in 1807, and was trephined in the Haslar Hospital shortly afterwards by Sir Stephen Hammick."

The specimen (No. 763) of a sternum with a bullet firmly imbedded in its posterior surface was taken by Mr. Stanley from the body of a man who was at the battle of Waterloo (*op. cit.*, p. 95).

There are many remarkable specimens of union of fractures with deformity which could not be obtained in the present day, owing to increased care, and improved apparatus, used in the treatment of fractures. In one of these, a fracture of the leg, the lower fragment is firmly united at a right angle to the upper. The case had not been subjected to surgical treatment.

Among the dislocations all the principal varieties are represented, and there are several very rare specimens, viz., a recent specimen of subcoracoid dislocation without laceration of the capsule, and showing an indentation on the posterior surface of the head of the humerus produced by its impact against the anterior margin of the glenoid cavity (No. 1019). This specimen offers a probable explanation of the mode of production of dislocation with fracture of the anatomical neck, for had the

blow been more severe, the head would probably have been chipped off, and would then have slipped forward upon the venter of the scapula (see Med. Chir. Trans., vol. lxiii.) Also a specimen of unreduced dislocation of the hip with fracture of the acetabulum, which occurred fifty years before the patient's death; it was presented by Mr. Wormald.

At the end of the series are three old specimens (Nos. 1047 to 1049) formerly described as examples of old dislocation of the femur backwards with elongation of the ligaments, but which I believe to be congenital dislocations. Two of these were used by Mr. Stanley to illustrate a paper "On Dislocations accompanied by Elongation of the Capsule and Ligaments" (Med. Chir. Trans., vol. xxiv., 1840); they were then Museum specimens, and the history of the cases was unknown. They all precisely resemble authenticated specimens of congenital dislocations in the following particulars:—The absence of any appearance of laceration of the capsule, which is simply elongated; the small ill-developed nodulated head, moving freely upon a smooth surface on the dorsum of the ilium, above and behind the small contracted triangular acetabulum, which must have been produced by arrest of development. In one specimen the ligamentum teres is intact, but much elongated; in the others there is no trace of it.

It is remarkable that no old specimens showing Charcot's disease of the joints associated with locomotor ataxy have been found in the various London Museums. That the absence of these specimens may rather be attributed to accident than considered an evidence of the origin of a new form of disease, is, I think, demonstrated by the following cases. In looking through the above-mentioned paper on "Spontaneous Dislocation," I find that Stanley has most accurately described at least one case of locomotor ataxy, with disease of both hip-joints, under the heading of "Dislocation of both Hip-Joints, consequent on Disease of the Spinal Cord, and probably of the Brain" (op. cit., p. 123). A short extract from the history will suffice to show that it was indeed a case of locomotor ataxy:—

"A gentleman, aged thirty-nine, in the year 1824 was attacked with spasms in the pectoral and intercostal muscles, and numbness of the whole of the left side of the body with the exception of the arm. In the left leg and thigh sensation was wholly lost, the power of motion remaining. He had no sensation of passing his urine after it had quitted the bladder, and was but just aware of the evacuation of faeces. Vision in the left eye was impaired to the extent that he could but distinguish daylight." The symptoms continued, with increasing weakness in the thighs and legs, to the complete loss of the

power of support and of sensation in them. “*Unless he saw his legs, he could not tell in what direction they were; but on looking at them so as to know their position, he could readily move them.*” He occasionally suffered most severe pains in the limbs.” The displacement of the hips took place respectively during two attacks of “violent spasms,” which compelled him to remain in bed several days. At no period had there been any sign of inflammation in the soft parts around the hip-joints. Mr. Stanley saw the patient in 1831, and thus describes the condition of the hip-joints:—There was a remarkable prominence at the back of the pelvis, caused by the projection of the thigh-bones. The head of each femur thus situated upon the posterior part of the pelvis was two inches and a half below the crest of the ilium, and four inches from the anterior superior spine. In the erect position there was a diminution of stature to the extent of five or six inches; and in the horizontal posture the thighs could be pulled down nearly to their natural position. When last seen in 1833, there was an improvement in the power of directing the movements of the limbs.

In Case II., related to Mr. Stanley, the left hip-joint was dislocated as a consequence of hemiplegia (?), chiefly perceptible in the left lower limb. The lumbar portion of the spinal cord was found to be pulpy, and the post-mortem also showed that the femur was displaced backwards and the capsule much elongated.

Although Stanley very imperfectly understood these cases, yet he clearly considered the spinal disease to be the cause of the joint affection, and therefore to him belongs the honour of having first drawn attention to this disease. If he had had an opportunity of making a post-mortem examination in the first case, the true nature of the affection would probably have been ascertained.

Among diseases and injuries of the spine are some remarkable specimens of displacements and fractures of the atlas and odontoid process; and a specimen from a case of fracture of the spine, in which Mr. Willett removed the laminæ of several of the dorsal vertebrae, “with relief to the existing symptoms of compression of the cord.” The sequel of the case was unfortunate; for “on the fifteenth day after the operation, while the patient was being moved from one bed to another, the spine not being supported, he became completely paraplegic, and died three or four days afterwards.”

The repair of tendons after subcutaneous division is shown by nine excellent specimens obtained by Sir J. Paget and Mr. Savory from experiments on rabbits.

In the excellent series of diseases of the heart, numbering no less than 157 specimens, is a heart (No. 1285A) studded with small soft tumours, described by Abernethy as a case of “tuberulated sarcoma” (*Essay on Tumours*,¹ op. cit. vol. ii.); the new

¹ In this essay Abernethy claims to be the first to attempt the classification of tumours, and he restricts this term to “new formations.”

growth would now be called a round-cell sarcoma, as shown by microscopic examination; the history of the case is also that of disseminated sarcoma.

No. 1286 shows a large cancerous tumour nearly filling the right ventricle of a heart; it was secondary to a tumour of the testicle; the case is related by Dr. Ormerod in the *Med. Chir. Trans.*, vol. xxx., 1847.

There are many interesting specimens of rupture of the heart from disease, and of aneurysm of the heart; among the latter an aneurysm of the left ventricle (No. 1262), three inches in diameter, from a woman who suffered for "many years from syphilis in its worst form," but had presented no distinct signs of disease of the heart; she died of dysentery. The specimen was presented by Dr. Baly. Further on is a specimen (No. 1295) showing a collection of hydatids between the endocardium and muscular wall of the right ventricle.

In Nos. 1299 and 1300 we have the specimens which led to the discovery of embolism in England by Dr. Kirkes (see *Med. Chir. Trans.*, vol. xxv., 1852); two hearts with papillary growths on the mitral and aortic valves covered with fibrin, portions of which became impacted in the middle cerebral arteries. Virchow was working at the same time on this subject, and he published his observations some time before Kirkes, but it is evident that his paper was quite unknown to the latter. This is an instance of the curious way in which discoveries are made when the time is ripe for them, or when they are, as it were, due; among other examples of which may be mentioned the publication of Dr. William Budd's paper "On the Symmetry of Disease" immediately after Sir James Paget's.

No. 1274 is a very remarkable specimen, in which a smooth, perfectly round ball of fibrin, one inch in diameter, was found lying loose in the left auricle. A similar specimen is preserved in St. George's Hospital Museum; and another, Dr. Coats informs me, in Glasgow.

In *Diseases of Arteries*, also an extremely well-represented series, the following are the most noteworthy specimens:—No. 1376, an aorta showing a large wound produced by the pulsatory movements of the vessel against the point of a sharp lance-shaped fish-bone, which had transfixed the oesophagus. A specimen (No. 1377) of ligature of the common carotid artery by Mr. Vincent, for haemorrhage from a wound of the tonsil by a clay tobacco-pipe. An aneurysmal varix of the external carotid artery (No. 1462), which communicated with the upper part of the internal jugular vein. The disease was the result of an injury by a piece of iron, which flew from the point of a pickaxe and

penetrated the side of the neck. A subclavian aneurysm (No. 1549), cured apparently by the complete obstruction of the axillary artery, close to the aneurysm, by an embolon.

Nos. 1564, 1750, and 1753, are the specimens of thrombosis of the pulmonary artery upon which Sir James Paget based his well-known essay "On Obstructions of the Pulmonary Artery" (Med. Chir. Trans., vol. xxvii., 1844), a condition which had previously attracted little attention.

In this series was also at one time included the lower extremity from the fourth case in which John Hunter tied the femoral artery for popliteal aneurysm at a distance from the sac. The patient lived for many years after the operation, and was for some time an occupant of an infirmary, where he was watched by Mr. Wormald, until, on his death, the limb could be obtained. When Mr. Wormald resigned, he transferred the specimen to, perhaps, a more appropriate home in the Hunterian Museum.

In the series Diseases of the Intestine are eight specimens of dysentery, described by Dr. Baly in the Gulstonian Lectures of 1847; they were obtained in an outbreak of this disease at the Millbank Penitentiary. Some of the earlier specimens of dysentery in the Museum were preserved by Dr. Latham, who was physician to the Penitentiary during a previous outbreak, of which he wrote an account, probably the earliest description of true dysentery.

Among the specimens showing the effects of poisons on the oesophagus and stomach are two, Nos. 1870 and 1941, which are figured in Dr. Roupell's Atlas, illustrating the effects of poisons on the mucous membrane of the alimentary canal, by excellent coloured drawings from the pencil of Mr. M'Whinnie, assistant surgeon to the Hospital.

No. 2030 is an enormous biliary calculus, $2\frac{1}{2}$ inches in its long, and $1\frac{1}{2}$ inches in its transverse, diameter, which lodged in the ileum and caused death from obstruction. The calculus had passed through a large ulcerated opening from the gall-bladder into the small intestine; and another large calculus had passed through another ulcerated aperture into the colon, and was found in the cæcum.

In the series of Hernia, almost every pathological condition is illustrated. No. 2113 shows a hernia of an ovary and Fallopian tube through the canal of Nück into the labium. Herniotomy was unsuccessfully performed on account of peritonitis following parturition, supposed to have been due to the hernia. The next specimen is the gall-bladder of a woman which formed a right femoral hernia.

There are three very interesting specimens of reduction *en masse*, Nos. 2116 to 2117, in which the mishap was respectively due to displacement of the neck of the sac, which contained the strangulated intestine; to reduction of the whole sac; and to rupture of the posterior wall of the sac with protrusion of the intestine through the rent.

There are two specimens of obturator hernia, Nos. 2160, 2161. In one of these cases Stanley operated upon a femoral hernia, under the impression that the symptoms of strangulation were produced by it, the obturator hernia not having been detected. Of the three specimens of diaphragmatic hernia, Nos. 2163 and 2163A were due to stab-wounds of the diaphragm; in the third, No. 2162, parts of the arch of the colon, the omentum, and pancreas protruded through a congenital aperture in the diaphragm into the thorax.

The congenital hernia dissected by Percival Pott (No. 2138) has already been alluded to. He discovered, by dissections in the foetus, the pathology of this form of hernia, which was previously believed to be produced by rupture or absorption of the partition between an ordinary hernial sac and the cavity of the tunica vaginalis.

No. 2166 is described by Sir William Lawrence in his treatise on ruptures,—an inguinal hernia, in which a portion of small intestine was found just behind the external inguinal ring, strangulated by a band of adhesion extending from the peritoneum near the ring to the mesentery.

No. 2190 is a rare specimen of intussusception cured by the separation of the portion of inverted small intestine and the adhesion of its upper portion to the caecum, within which it was protruded. The patient, however, died of exhaustion ten days after the discharge of the gangrenous intestine from the anus.

Passing on rapidly, the following specimens attract observation.

Occlusion of the common bile-duct by a hydatid, No. 2253.

No. 2278, a mass of enlarged cervical lymphatic glands, removed by Mr. Vincent from a child's neck, in which they formed a tumour extending from the ear to the clavicle. A bold operation to undertake at that time, viz., in 1823.

A specimen, No. 2504, of cancerous disease of the pituitary body, described by Sir G. Burrows.

Several interesting cases of hernia cerebri (p. 381), described by Mr. Stanley in a paper in the Med. Chir. Trans., vol. vii., 1817.

A dermoid cyst, found lying beneath the pia mater, covering the inferior surface of the cerebellum, No. 2506. It was preserved by Sir J. Paget.

A specimen, No. 2550, showing repair of the spinal cord of a

pigeon completely divided by Brown-Séqward. The power of walking was recovered.

An interesting specimen, No. 2580, of perforating ulcer of the cornea, due to a tumour in the left side of the pons Varolii, which compressed the origins of the fifth and facial nerves on the same side. The case was described by Mr. Stanley in 1828.

Among tumours of the eye are three interesting specimens described by Sir William Lawrence in his "Treatise on Diseases of the Eye," and elsewhere.

In the series of General Pathology many tumours will be found, described by Sir J. Paget in his Lectures on Surgical Pathology. Among these are some remarkable cases of "recurring fibroid," or spindle-cell sarcoma, in one of which, No. 3300, there were five recurrences after removal, and the disease extended over a period of fourteen years.

Here is also the specimen, No. 3327, from the case of epithelioma of the left hand of a gardener, which is related by Sir James Earle in his edition of Pott's works, vol. iii. p. 183. The patient was employed during the spring of two successive years in sowing soot from a basket which he carried by a handle passed over the back of his left hand. At this spot, where the skin was irritated by the friction of the handle of the basket covered with soot, some warts first appeared, and an epithelioma subsequently developed.

No. 3269 is a foot amputated by Mr. Langstaff for a large fibrous tumour in the sole. "An enlargement of the sole of the foot had been observed for thirty years. Numerous unsuccessful attempts had been made by Mr. Pott, Mr. Hunter, and others to reduce its size."

There are two specimens of arterial angioma, in both affecting the pinna of the ear. And two specimens of congenital sacral tumour, Nos. 3372, 3373, described by Mr. Stanley in the Med. Chir. Trans., vol. xxiv., 1841.

The Gynaecological series, and allied series of Teratology, have been largely added to by Dr. Matthews Duncan's excellent collection, which he presented in 1879.

In the former is a specimen of foetation in an undeveloped uterine horn, formerly described as an extra-uterine foetation.

In the series of Teratology are many very interesting specimens, of which only the following can be mentioned:—

"The stomach and intestines of a boy whose body measured 4 ft. 3 in. The small intestine measures about 2 ft. in length, and the large intestine upwards of 4 ft." This specimen was described by Abernethy in the Philosophical Transactions, vol. lxxiii.

A. 131. An encephalocele protruding through an aperture in the occipital bone below its spine, related by Mr. Earle in the *Med. Chir. Trans.*, vol. vii.

A. 139B. A brain in which the corpus callosum and fornix are imperfectly formed, from a girl aged 21 years, who presented an ordinary condition of mind. The case is related by Sir J. Paget, *Med. Chir. Trans.*, vol. xxix.

A. 177. A remarkable dermoid cyst, which occupied the anterior mediastinum. It contains, besides the usual contents, portions of bone resembling the superior maxilla, with several teeth.

A. 36B. The heart and part of the left lung from an adult in whom no pericardium existed; the heart lay in the cavity of the left pleura.

In the Physiological Section there are two specimens of injected peritoneum and pleura, prepared by Scarpa, and presented by him to Sir G. Burrows. Also a testicle injected with mercury, presented by John Havers.

The curious colouration of the bones of young animals obtained by the admixture of madder with their food is shown in two skulls of young pigs, obtained by Mr. Stanley.

Among the calculi is a section of a large uric acid calculus, removed from the bladder by Percival Pott; also two enormous calculi, weighing respectively $36\frac{1}{2}$ and $9\frac{1}{2}$ oz., removed, with many hundred smaller calculi, from the kidneys of a man. They are composed chiefly of phosphate of magnesia and ammonia.

The small collection of Crania contains the skull of Bellingham, who shot the Right Hon. S. Perceval in the lobby of the House of Commons in 1812; an adult skull marked by Dr. Spurzheim for the explanation of his system of phrenology, and presented by him to Abernethy; also two Swedish skulls presented by Professor Andreas Retzius.

This account of the Museum would indeed be incomplete if the debt were not recognised, which the Anatomical Section owes to Mr. Holden for many beautiful osteological preparations.

We may well be proud of the men who have built up our Museum, among whom may be named Pott, Abernethy, Latham, Stanley, Lawrence, Kirkes, Paget, Burrows, and many others (not to mention those forming the present acting staff).

If I have had occasion in this short review in a few instances to point out their errors, it is in no feeling of disrespect to their memories; for be it remembered that they have only become apparent to us by the additional light of later work.

But what will be the changes necessary when the catalogue undergoes the next revision ? If the discovery of the *materies morbi* of various diseases continues with the same rapidity as at present, it is not improbable that the larger number of the specimens will be grouped under some such a heading as: Diseases produced by Specific Organisms, and classified according to their species and genera ; others, under pathological changes due to certain abnormal physico-chemical processes, and so on.

Fortunately, as a science is perfected it becomes simpler. Let us, therefore, hope, for the sake of the student of the future, that the classification of morbid growths will be simplified and rendered practical ; and, if I may hazard a conjecture, it will perhaps be in the direction of accurately determining their origin from the various elemental structures of the body, and establishing their precise relation to the processes of repair on the one hand, and to the mode of development of the various organs and tissues on the other.

The external appearance of our collection may at any time be completely changed, even to the extent of replacing a large number of the preparations ; for example, by the discovery of some gas or other agent, which, acting as a germicide, would prevent decomposition, and preserve the tissues without altering their appearance when fresh.

I have penned this account with the hope of exciting increased interest in our Museum, which may not inaptly be compared to some oceanic island, formed by the accretion of atoms and débris from the *sea of suffering humanity* upon the rock of scientific research, and now offering a rich soil for the cultivation of successive generations of scientific medical practitioners. May they preserve and enrich it with their ripening fruits of knowledge !

I am much indebted to the kindness and courtesy of Sir James Paget for many interesting particulars related in this paper.

SURGICAL CASES.

BY

JOHN LANGTON.

Two Cases of Acute Purulent Catarrh of the Middle Ear treated by the Injection of an alkaline fluid through the Tympanum.

E. J., aged 46, was a patient in Kenton Ward in March 1875, under the care of Mr. Savory, for a comminuted fracture of the tibia and fibula. While under treatment he was one night exposed to a draught of cold air, and the next day he complained of acute pain in both ears, accompanied with nearly complete deafness. He was treated by the house-surgeon with fomentations of opium lotion, and morphia internally to relieve the pain.

The next day I was asked to see the patient. There was profuse purulent discharge from both ears; a watch could only be heard in contact with the pinna, while the tuning-fork could be heard more acutely than normal over the vertex of the skull.

On examination with the otoscope, I found both meatus filled with pus, which occluded the membranes from view. When the pus was removed, both membranes were observed to be acutely injected, oedematous, and with a perforation in each. The perforations were somewhat large, and the pus which filled up the apertures exhibited in a well-marked degree the rhythmic beating of the arterial pulse.

Seeing the perforations had only existed for twenty-four hours at the utmost, I determined to try the value of the forcible injection of a weak alkaline solution through the tympanum, so as to cleanse out, as thoroughly as possible, the tympanic cavity from all purulent secretion. With this view, I filled a brass syringe with a warm solution of soda (consisting of five grains of domestic soda to an ounce of water). Over the nozzle of the syringe was drawn tightly a piece of india-rubber tubing, so that it might fit accurately the

external auditory meatus. The contents were then very cautiously and slowly injected through the tympana and the Eustachian tubes, and escaped through the corresponding nostril. About half an ounce of this fluid was injected through each tympanum.

The patient afterwards expressed himself as feeling relieved of much of the previous throbbing and sense of fulness in the ears, although the acoustic power was not appreciably increased.

The next day all the unfavourable conditions had improved, there being less pain, throbbing, and discharge. The perforations seemed hardly so large, and the membranes were less vascular. A watch could be heard at a distance of half an inch on each side.

Both tympana were again injected after the same manner as yesterday, but with a very diluted solution.

Day by day, the discharge diminished and became less purulent; with its diminution the hearing power improved, so that in a few days after the first injection the patient's hearing increased to six inches on the left, and to four inches on the right side. Within eight days the perforations had completely healed, attended with almost normal hearing on both sides.

I saw this patient about a year afterwards, and ascertained that he had had no further aural trouble, and that his hearing was as good as ever.

The other case was that of a nurse in Colston Ward, who had never previously been the subject of any trouble with her hearing, and who was attacked with an acute purulent catarrh of the left ear, under conditions similar to those which ushered in the attack of the first patient. I saw this patient almost from the commencement, but was unable to avert perforation of the tympanic membrane, which took place within thirty-six hours of the onset of the symptoms. Within a few hours of the appearance of the discharge, the same plan of treatment was adopted as in the first case. The result was equally satisfactory, for in ten days the perforation had healed, with a return of normal hearing power.

The clinical minutiae of this case have not been described at length, since they correspond in almost all their details with those of the first patient.

It rarely occurs that we have the opportunity of being able to treat from the outset, cases of acute purulent catarrh of the middle ear. During the seven years that I had the charge of the aural department of this Hospital, only five instances occurred out of the 3000 patients who came under observation in that period.

These few cases cannot, however, represent even approximately the number of instances of purulent catarrh of the middle ear, which had their commencement in an acute form. The histories of a large number of chronic cases clearly demonstrate that they had

their origin in an acute attack months, and even years, previously.

Our experience teaches us that one of the chief reasons why, comparatively speaking, so few cases come under our notice is, that most of the severe pain ceases coincidently with the escape of the muco-purulent fluid from the tympanic cavity; and as perforation of the membrane usually takes place rapidly in the course of this disease (frequently within thirty-six hours), the patients delude themselves with the belief that with the cessation of pain all occasion for anxiety or for urgency of treatment is at an end. Although they are troubled with deafness accompanied by a purulent discharge from the ear, they neglect to seek advice till periodic pain or increasing deafness demands attention. It is thus that the acute cases of tympanic catarrh drift into the chronic variety.

This delay involves large changes in the tympanic mucous membrane and the membrana tympani. The latter becomes of a tawny-yellow colour, and sodden in consistence. This condition of the membrane is indicative of the same changes which involve the mucous membrane throughout the entire tympanic cavity. The perforation, at first small, becomes larger by the destructive ulcerative process, and hence less disposed to cicatrise. Perforations of the membrane heal by the same process as solutions of continuity do in other soft tissues; that is, firstly, by contraction of the surrounding tissues, and, subsequently, by cicatrisation of the granulation tissue. The rapidity of the healing of ulcers is, other conditions being equal, in direct proportion to the elasticity and yielding of the neighbouring tissues. The membrana tympani is, however, a tense diaphanous septum attached to an osseous ring, so that its anatomical conditions are not those most favourable for the healing of perforations. It is a well-known fact in aural surgery, that while incisions made into the membrane with the object of evacuating fluid from the tympanic cavity are with difficulty retained patent; perforations resulting from disease frequently refuse to close, even under long-continued treatment.

The prospect of perforations of the membrane cicatrising is of necessity much lessened, when the membrane has undergone extensive pathological changes, or where the aperture is of considerable size.

The primary seat of acute purulent catarrh is, I believe, in the large majority of cases limited to the mucous lining of the tympanum, and it is only in the later stages that the osseous structures are involved.

The presence in the middle ear of a fluid which easily undergoes putrefactive changes, must prove a source of continuous

irritation to the structures with which it remains in contact. Its early removal, therefore, seems to be demanded, so as to prevent any further changes in the middle ear. These changes,—their nature and their extent,—are well known in aural practice, and occasionally end in disastrous results.

The unfavourable result of treatment of chronic purulent catarrh (especially among the lower classes), renders it difficult to urge too strongly the importance of the early diagnosis and the prompt treatment of this malady, since it is mainly in its early stage that fairly satisfactory results may be expected.

In some cases it is (and perhaps it may be in many) impossible to inject fluid through the tympanic cavity; but when practicable, this plan offers, I believe, the best expectation of a good recovery.

Looking back upon the second case, it would, in my present opinion, have been better to have incised the membrane and then to have evacuated the pus from the tympanum. There would then have been a simple incised wound, instead of a perforation, and thus the possibility of failure might have been materially lessened.

Hæmatoma of the Epididymis.

Henry B., *ætat* 33, a spare man, with an anxious, wan expression, was admitted into Colston Ward on April 19, 1881, with the history that he was perfectly well in all respects until three weeks ago. He then caught cold, and this was succeeded in the course of a few days by swelling of the left testis. The testis attained its present dimensions in the course of two days, and has not been attended with much pain. He is very positive that he has not been subject to any injury of the organ.

On examination, there was a tumour of the size of a large orange, occupying the left half of the scrotum, which itself is neither red nor discoloured, but only slightly oedematous. The tumour is not translucent, though it evidently contains fluid. The cord is free and normal above the enlarged testis.

The suddenness of the enlargement, as well as the examination, pointed to the case as being one of hæmatocele, but there appeared, beyond this, to be some enlargement of the testis.

The tumour was tapped, and an ounce of blood-stained serum was evacuated. After the removal of the fluid there remained what appeared to be a large testis, with a greatly enlarged epididymis. The testis was smooth and painless, the epididymis irregular and hard.

April 23.—The fluid having re-collected, I made an incision about three inches long into the sac, when a considerable amount of blood, partly fluid, partly coagulated, escaped through the open-

ing. The testis was, by the force of the escaping fluid, almost ejected through the wound, so that the tunica albuginea was unavoidably slightly incised. After the blood had been completely removed from the tunica vaginalis, the testis was observed to be somewhat enlarged, and of a dark-blue colour, with its serous covering smooth and secerning.

The viscus was very freely movable in the sac of the tunica vaginalis, owing to an unusually extensive reflection of the visceral layer of the serous covering. The testis, indeed, was so mobile, that it could be entirely lifted out of its sac, and was simply suspended in it by the commencement of the cord. The epididymis was much enlarged, irregular, tense, and of a deep blue, almost black colour. Its upper part presented a deep constriction, as if twisted upon itself; above this point the cord was natural. An attempt was made to untwist it, but without success; for the appearance was, as if the entire viscus had been twisted upon its own axis, and that blood had been rapidly effused into the epididymis, constituting, in fact, an apoplexy of this body.

The edges of the incision were brought together by silver sutures, with the exception of the lowest part, so as to secure efficient drainage. The operation was done antiseptically.

April 25.—The edges of the wound are red and oedematous, and there has been a large escape of sero-sanguineous fluid from the wound.

April 28.—There is free suppuration, with no attempt of union of the edges. Between the separating edges there is seen an ash-coloured slough, which is apparently the testis.

May 6.—The testis and epididymis have sloughed in their entirety. The tubuli seminiferi can be easily recognised.

May 20.—The last portion of the testis came away a few days ago, and the wound is now healing fast. The patient was discharged May 23, with the wound all but healed.

Spasmodic Spinal Paralysis Treated by Stretching the Great Sciatic Nerve.

Alfred H., æstat 25, fisherman, was admitted into Darker Ward, at the request of Dr. Gee, under whose care he had been for some time in Luke Ward.

In the year 1879 he was an in-patient under Dr. Gee, suffering from spasmodic spinal paralysis of the right lower extremity. The clinical features of his case, together with the treatment then adopted, are described at some length in the 15th volume of the Hospital Reports.¹

¹ Hospital Reports, vol. xv. p. 179.

He was at that time treated for the first twelve days with 30-grain doses of the bromide of potassium, and for the succeeding fortnight with extract: physostigmatis in doses gradually increased to a quarter of a grain. This plan of treatment was then discontinued in consequence of abdominal pain, and he was then ordered 10 grains of the extract of conium four times daily. The dose of the extract was increased to 30 grains, but the form was subsequently altered to Squire's succus conii in 2-drachm doses. This amount was periodically increased, so that fourteen days after its commencement the patient was taking 2 ounces night and morning.

On his discharge two months after admission, Dr. Gee notes "that the conium seemed not to have the slightest effect."

The patient was readmitted into the Hospital in July 1881, with his urgent request that something might be done, even, if necessary, to the removal of the limb, for the constant spasmodic contractions of the leg made his existence an intolerable burden to him.

His symptoms continue mostly as they were on his first admission, although many seem to have become exaggerated in some of their details. Thus, when sitting, he supports his flexed knee with his clasped hands, for in this position, he says, the spasm causes him less annoyance; when walking, the foot is so inverted that the great toe catches the heel of the opposite foot every time the affected limb is brought forward in locomotion. The tendon-reflex is still well marked. The right arm is slightly rigid, and when it lies at rest by the side of the body, the forearm is hyperpronated. The thumb is adducted, and flexed upon the palm of the hand, the fingers at the same time being flexed so as to cover the adducted thumb.

There are no choreic movements in the upper extremity and no pain.

The patient was seen in consultation with my colleagues, as to whether operative interference offered any reasonable hope of lessening his trouble. It was recommended to try the effect of stretching the great sciatic nerve, although this measure did not seem to offer much chance of success, since other nerve trunks besides the great sciatic were implicated. The spinal cord, moreover, was probably involved high up in the canal, since the right arm was affected, though in a less degree than the lower extremity.

My colleagues shared with me my doubt of being able to achieve much improvement by the adoption of this plan, on physiological as well as on pathological grounds. But, with our present inexact knowledge of the value and the *modus operandi*

of nerve-stretching, we hoped it might possibly alleviate some of the patient's severer symptoms.

On July 16, I therefore exposed the great sciatic nerve below the lower border of the gluteus maximus. The nerve was easily laid bare between the contiguous borders of the semi-tendinosus and semi-membranosus. I passed my finger beneath the nerve, drawing it upwards, so that by the traction the leg was brought into a semi-flexed position, and subsequently pulling the nerve well downwards in the reverse direction towards the knee. The operation was performed with antiseptic precautions, and the edges of the wound were brought together by silver sutures.

July 17.—There is no diminution in the severity of the spasms.

July 18.—The wound was dressed and looks quiet; some of the sutures were removed. During the previous night some twitchings were noticed in the left leg similar to those in the right. Temperature in the morning was 100.6°; in the evening, 100°.

July 20.—Wound is suppurating freely; since yesterday there has been no spasmotic twitching of the left leg.

August 5.—The wound has made no attempt to unite, owing to the constant spasm of the hamstring muscles, which protrude through the wound. There has been no improvement in the spasm of the right side. Ordered tinct. belladonnæ ℥ x. ter die.

August 23.—The choreic movements and the rigidity have been markedly less—so much so, that the patient's walk is materially improved. His right leg is projected nearly straight, and the profuse sweating, which was such a prominent symptom, is much lessened.

September 9.—Still improving under the belladonna treatment, and the patient was discharged much improved in his locomotive powers and in the diminished muscular rigidity and spasm.

The sister of the ward subsequently received two letters from the patient, the last of which was dated October 14th. In this he stated that "he is very pleased to tell her that his leg is better; that he has left off taking the medicine for some time, and that he has discontinued the use of his stick and crutches." He concludes his letter by saying that he feels so much better that he is going to join his brother-in-law, as a wherryman on the river.

The patient further informs the sister that since he left off taking the belladonna he firmly believes that the improvement in the leg has been more marked.

Operation for the Union of a Divided Ulnar Nerve.

S. B., æstat. 17, was admitted into Colston Ward on May 11, 1881. Whilst he was using a chisel it slipped, causing a deeply incised, oblique wound a short distance above the wrist joint, and extending for an inch and a half. The bleeding at the time was profuse, but was controlled by a towel tied tightly round the wrist.

On examination, my house-surgeon ascertained that the ulnar artery and nerve, as well as the tendon of the flexor carpi ulnaris, had been divided.

Both ends of the severed artery were secured, and the extremities of the divided ulnar nerve were joined together with catgut sutures. Some doubt existed in Mr. Bowbly's mind whether he had secured the proximal extremity of the nerve. After the supposed junction of the nerve, as well as after the accident, there was loss of sensation and motion in those parts supplied by the ulnar nerve.

May 19.—Slight return of sensation.

June 1.—Sensation, according to the patient's statement, has improved somewhat, but is still very deficient.

June 3.—On a careful examination to-day we failed to demonstrate that there was any sensation or motion in the course of the divided nerve. The wound has healed completely, and the patient was at his own request discharged the following day.

He was re-admitted on June 30, having no sensation or motion in those parts of the hand supplied by the ulnar nerve.

The hand presents, in a marked degree, atrophy of all the muscles in the palm to which the ulnar nerve is distributed, while the skin supplied by that nerve is soft, cold, and clammy. The altered position of the ring and little fingers, the result of the paralysed condition of the two ulnar lumbrales, exhibits most plainly the use of these muscles in health. The first phalanges of the ring and the little fingers, in the condition of rest, are extended upon their articulating metacarpal bones, the second phalanges being at the same time flexed at an obtuse angle upon the first row of bones. The two radial lumbrales act normally.

On July 1, under carbolic spray, the ulnar nerve was exposed in the course of the cicatrix to the extent of three inches. The divided ends were found to be connected by tough connective tissue, and were closely adherent to the surrounding structures. The whole of the cicatricial portion was removed, and the healthy cut ends of the nerve were without tension easily brought into exact apposition, and were united by horse-hair and catgut sutures.

July 2.—Some slight return of sensation in the ulnar part of the hand, especially over the little finger.

July 7.—Sensation much improved, but is yet a long way from being perfect.

July 20.—The sensation has not materially improved since the last note, and the success of the operation has been only partial ; but the patient expresses himself as well satisfied with the improvement.

October 20.—The patient presented himself this afternoon at the Hospital. The muscles of the hand are less wasted, and he is himself confident that he has more power in the hand. The skin is warmer, and has lost much of the soft, clammy feel it had on his admission. Sensation is felt more acutely over a larger area, but still is by no means perfect.

December 3.—The lad came again to-day to the Hospital, stating that he had been at work regularly since the last note. Sensation is complete, except of that portion of skin covering the palmar aspect of the ungual and half the second phalanges. The interossei muscles are increasing, so that the hand has lost its withered aspect. He can grasp almost as firmly with the injured as with the sound hand. He is not conscious himself of much difference in the muscular power of the two hands.



ON SOME
FORMS OF DILATATION OF THE HEART,
WITH ILLUSTRATIVE CASES.

BY

SAMUEL WEST, M.B.

The following cases of dilatation of the heart seem to me worthy of record, as instances of some of the rarer, or at any rate less generally recognised, forms of this affection.

Chlorosis.—Out of thirty-two cases of chlorosis examined in the Casualty Department, I found dilatation present in all, evidenced by displacement of the apex and by general increase in the cardiac dulness.

The apex in nearly all was half an inch outside the nipple-line, the dulness extending from the apex upwards in a bold curve to the lower border of the third left costal cartilage, and to the right a little beyond the edge of the sternum. In two cases these limits were slightly exceeded.

A murmur was present in nearly one-half of these cases (fifteen out of thirty-two). When present, it was soft and blowing in character and systolic in time. In ten out of the remaining seventeen cases it was audible over the whole praecordial region. Of the other seven, in three at the apex only, and in four at the base only; and of the latter, in two at the pulmonary only, and in the other two over both aorta and pulmonary artery, though loudest over the latter. The continuous venous murmur in the neck was well marked in all; and besides this, in seven cases there was also a systolic arterial murmur over the carotids.

The theory which refers these murmurs simply to an altered condition of the blood is not, I think, sufficient, as the following case shows.

A girl, aged 17, was admitted into the Hospital for extreme chlorosis. She had a loud venous murmur in the neck, and when examined in the Surgery, the heart was found dilated, the apex being half an inch outside the nipple, and the dulness increased upwards, and reaching to the right edge of the sternum. There was a systolic apex-thrill and a general systolic blowing murmur. Three hours after admission, the patient being in bed in the meanwhile, all these signs had disappeared ; the heart dulness was of normal size and the murmur gone. In the neck the venous murmur was still audible, though not so loud as before. She remained in bed for six days and improved greatly. She then got up and probably took a chill, for in the evening she shivered, and the next morning had a sore throat. The cardiac symptoms all returned ; the dulness was as on admission, and a systolic murmur audible over the whole praecordial region, at apex as well as base, although loudest over the pulmonary artery. I did not see the patient again for a week, but at that time all these signs had disappeared ; the dulness was normal and the murmur gone.

The altered condition of the blood alone is in this case clearly not sufficient to account for these murmurs, which come and go with the dilatation. Nor is there any reason to believe that these murmurs are due to valvular incompetence, as is commonly asserted in cases of extreme cardiac dilatation. We are, I believe, then, justified in connecting these murmurs with the dilatation of the heart, though the fact that they do not always occur even when dilatation is present would indicate some other factor in their production, which may well be the condition of the blood. In the large arteries it is well established that dilatation is adequate to produce murmurs, generally systolic. In the permanent dilatation of aneurysm this is the rule ; but it is also common in those less frequently described cases of temporary dilatation of large arteries of which, under the name of "mimic aneurysm," I gave a short account in the Reports of last year, and it is usual over the pulsating thyroid in cases of exophthalmic goitre.

In chlorosis, then, the cause of the murmur is the cardiac dilatation ; but the heart dilates because the muscle is feeble, and this is due to its defective nutrition from the poorness of the blood. As in chlorosis, so in protracted anaemia of any kind, cardiac dilatation and murmurs may arise ; though, so far as my experience goes, this is not the case in sudden anaemia ; as, for instance, in that produced by profuse haemorrhage. If this be so, the probability of some tissue change is suggested as the result of the impaired nutrition of the heart, and this, too, probably even in the less severe cases of long-standing anaemia. Experimentally, Tschud-

nowsky¹ and Perl² have proved this to be so in dogs as the consequence of oft-repeated bleeding, the heart being found not only dilated, but also in a condition of fatty degeneration. There are numerous cases also recorded in man of similar change in the heart as a consequence of persistent anaemia, and it is one of the prominent pathological changes observed in cases of so-called pernicious anaemia.

We may conclude, therefore, that all changes in the blood which impair the nutritional powers will affect the heart, as other organs, and that the evidence of this nutritive impairment will be dilatation, with in many cases murmurs, and in the most extreme cases fatty degeneration.

Rheumatic fever supplies an interesting series of cases of dilatation, which may be arranged into three groups. The first is the anaemic group, where the dilatation is due, as in the cases just described, to the imperfect nutrition of the heart from the anaemia, which forms so characteristic a feature of this disease. Two cases of this kind will be sufficient to refer to; these I have described at length in vol. xiv. of these Reports. Both were convalescent from the fever, one having had a very mild attack, the other an attack complicated by slight pericarditis, which lasted only a few days and completely disappeared. Both patients got up on the same day, and on the following day the heart was found dilated, the apex displaced outside the nipple-line, and the dulness increased. One was then kept in bed again, while the other remained up. In the former the apex returned nearly to normal at once. In the other the apex was slightly more displaced on the next day, and then slowly returned, in the course of a few days, to nearly its normal position. In these cases cardiac weakness alone could account for the dilatation.

The second group consists of those cases in which the dilatation is the sequela of endocarditis and pericarditis, cases of such common occurrence that farther reference to them is hardly necessary.

The third group contains those cases of considerable rarity in which there is an acute degenerative or inflammatory change in the muscular fibre. I can refer to three cases of this kind.

Two of these are recorded in detail in vol. xiv. of these Reports. Of these two, the first was a boy in Mark Ward, a well-marked case of rheumatic fever as regarded the joint affections, but peculiar from the commencement in the extreme feebleness of the pulse and heart-sounds, in the rapidity of the breathing, and in the cyanotic tint of his complexion. The heart was dilated, and he had at no time any evidence of endocarditis or pericarditis. The patient presented all the symptoms of a weak heart, and in the absence of any cause in the endo- or peri-cardium, it seemed right

¹ Botkin's Archiv., Bd. 2, 1868-9.

² Virchow's Archiv., lix. 1.

to infer an inflammatory condition of the muscular substance—a myocarditis. The patient ultimately recovered completely.

The second case, which occurred in Dr. Bristowe's practice at St. Thomas's Hospital, and which he kindly gave me permission to quote in the paper referred to, was an instance of sudden death in rheumatic fever, and the post-mortem examination disclosed an acute myocarditis.

The third case is perhaps the more remarkable. William Y., aged 16, was admitted into Victoria Park Hospital for Diseases of the Chest with the following history:—He had been quite well until March 1, 1881, when he was seized with rheumatic fever, and confined to bed at home for a week. He then got up and became an out-patient of the Hospital. He complained of pain in the praecordial region, dyspnoea, and palpitation, with slight cough.

He made no progress as an out-patient, and was admitted on April 23d, about seven weeks from the commencement of his illness. He was extremely pale, complained much of palpitation and dyspnoea, and had for the previous three days been troubled much with vomiting. The heart's impulse was diffused, its action rapid and irregular; the apex was between the fifth and sixth ribs in the nipple-line; the dulness extended one inch to the right of the sternum; the upper border was probably overlapped by lung, and could not be accurately defined. There was a strong presystolic apex-thrill. An impulse and thrill (systolic) was also felt below the ensiform cartilage in the epigastrium. There was a loud to-and-fro sound, thought to be friction, audible over the whole pericardium; a low-pitched presystolic murmur at the apex, loudest between the ensiform cartilage and the nipple line; and a louder, higher pitched, and rough systolic murmur audible at the apex and also at the angle of the scapula.

The liver was two inches below the ribs in the nipple-line.

On the 30th of April, the patient became a little jaundiced and the legs a little oedematous.

On May 1st the jaundice was deeper; the patient brought up a little bright blood, probably from the lungs.

On May 2d the jaundice was deeper, there was a little more haemoptysis, the oedema increased, the cardiac condition was not altered, and in the evening the patient died.

The post-mortem disclosed the most extraordinary condition of the heart. The pericardium was perfectly normal, but the heart substance below was freely speckled with yellow opaque spots of fatty degeneration, general over the whole heart, though most marked in the left ventricle: the fatty change was so extreme that on section the fat drops oozed copiously out of the heart; the change was most advanced in the outer pericardial half. Although there was no pericarditis, there were a few minute ecchymoses in

the muscular substance, but these were more numerous in the fat of the auriculo-ventricular grooves. All the cavities as well as the tricuspid and mitral orifices were much dilated. There was abundant vegetation on the aortic and mitral valves, and a few of the chordæ tendineæ were ruptured. The complete description of this case was given before the Pathological Society. I have never before met with any instance of such extreme fatty degeneration in any form of heart disease.

The cases of temporary dilatation referred to in chlorosis and rheumatic fever illustrate the effect of extra-muscular effort, even of slight extra work, upon enfeebled hearts, and explains probably the usual absence of any reference to cardiac dilatation in cases of this kind which are observed in in-patients of hospitals, for the cardiac feebleness must be extreme in patients at rest in bed to produce any marked dilatation.

The same effect which muscular effort may produce is also produced occasionally by nervous excitement. An instance of this kind came under my observation at the out-patient department at Victoria Park. A young woman with mitral disease was examined by me, and subsequently by some other gentlemen. She was a little fatigued and excited by these examinations, and when I looked at her chest again I was surprised to find the apex an inch outside the place where I had fixed it on my first examination, and the cardiac dulness correspondingly increased. As the patient rested and the excitement passed off, the apex and dulness returned to their usual position.

In exophthalmic goitre the dilatation which occurs is also probably in great part nervous in origin; and the cardiac weakness due to the anaemia, which is usual in this disease, combined with the attacks of cardiac excitement and palpitation, may account for the cases, occasionally met with in this affection, of syncope and sudden death, of which we have had two or three instances in the last few years in the Hospital.

In fevers dilatation may occur at two periods—either during the height of the fever or during convalescence. In the former case a granular condition of the fibre has been found, similar no doubt to the parenchymatous degeneration described in the cells of the liver and kidney. Such a change furnishes the pathological explanation of the clinical importance of the first sound of the heart in fevers and of those cases of sudden death which occasionally occur.

A feeble first sound may indicate an amount of constitutional feebleness of which the cardiac symptom may be only one expression, and which may evidence itself in some catastrophe, not cardiac in origin. Such a case as the following is instructive in this respect.

A boy of 14 was in Mark Ward with what appeared to be a remarkably mild attack of typhoid fever, but from the time of his admission the case was peculiar in the great dilatation of the heart, in the extreme feebleness of the first sound, and in the short, jerky, soft, unsustained pulse. He recovered from the fever, was given more food, and thought to be convalescent, when he was suddenly seized fourteen days later with great abdominal pain, and died of perforation.

It is not, I think, too far-fetched to connect the feeble nutrition of the heart with the feeble repairing power of his intestines, which resulted in perforation.

It may appear odd to associate the hypertrophied, or the presumably strong heart, with the dilated or actually weak heart, and yet hypertrophy usually ends in dilatation, and this is often found to be due to a fatty change in the muscular fibres. Clinically, a hypertrophied heart is the reverse of a strong heart. It is always more liable than a healthy heart to break down under pressure, and for these two reasons—1st, It is always extra-worked, and being extra-worked, may easily become over-worked; and an over-worked heart is a weak heart, and will therefore dilate. 2d, A hypertrophied heart requires more blood, and this it cannot easily obtain, for the coronary arteries do not increase in size in the same proportion as the heart tissue, and if the nutrition is inadequate the heart becomes first feeble and then fatty. Cases of this kind are not uncommon. A man of 28 came as a patient to the Royal Free Hospital, with the history of pain in the left side, palpitation, and slight dyspnoea on exertion. His heart was clearly dilated and hypertrophied. His history was that he had for some years been a great runner, and had won many prizes, and had been in constant training. For the last two years he had given up racing and had become a painter, and almost ever since had been troubled in this way. He was anaemic, possibly from his work, though there was no lead line. There was no other assignable cause for his debility. The patient had a hypertrophied heart, of which the nutrition was, I suppose, adequate as long as the health was good; as soon, however, as the health began to suffer, partly from the change of life and partly from the work, the heart was the first organ to fail.

A second case of this kind was also under my treatment in the Royal Free Hospital. This was a man of about 40 years of age, an ostler, who had had a good deal of heavy work, had indulged largely in drink, but had never been ill in his life until three months before admission. At that time his breath began to get short, he had a dry cough, and had pain and palpitation in the left side on exertion. He was admitted with an enormously dilated heart, the apex being in the seventh space. The arteries

were rather hard, and there was a little oedema of the feet, and a little albumen in the urine. He had several attacks in the Hospital of nervous dyspnoea with cardiac pain, resembling ill-developed angina attacks; and he passed into a condition so strongly resembling ureæmia, that the diagnosis was made of a degenerate hypertrophied heart in connection with granular kidneys.

Though he improved for a time, he never rallied, and finally died of exhaustion. Post-mortem no disease was found except an enormously hypertrophied and dilated heart, free of all valvular or pericardial disease: no adequate cause for this affection could be discovered. The kidneys and liver were slightly congested, but otherwise perfectly normal. The case presented all the characteristic features of rapid cardiac failure, such as is usual in aortic disease or in atheroma of the coronary arteries, and yet no such lesion existed.

These are both instances of dilatation consequent upon hypertrophy, but cases are occasionally met with in which the dilatation probably precedes the hypertrophy. This is the explanation, I believe, of those cases in which cardiac symptoms develop in otherwise healthy persons after excessive and exhausting exertion; as, for instance, after rowing or running races, after a hard football match, &c. It is interesting in these cases that with rest and care the symptoms usually completely disappear.

The cases just quoted are instances of the result of extra-work in hearts which are otherwise perfectly healthy, and therefore much less liable to break down than hearts which are in some way or other diseased, and it is not necessary to do more here than refer to those cases of dilatation after hypertrophy which occur in the course of disease of the heart itself or its valves.

Defective nutrition is the commonest of all the causes of dilatation, and reference has already been frequently made to those cases in which the primary cause is to be found in some altered condition of the blood, as in the various forms of anæmia or of fever; but even when the blood itself is healthy the nutrition may be insufficient from some local impediment to its circulation through the heart, whether due to obstruction to the entrance of blood into the arteries—arterial anæmia; or due to obstruction to the exit of blood from the veins—venous obstruction.

But the cardiac circulation is peculiar in this respect, that it is perhaps even freer during diastole, at any rate during the early part of it, than during systole, for at that time, while arterial tension is high, the muscle is completely relaxed, and in a condition to offer therefore the least possible impediment to the passage of the blood through it. Wherever, then, the arterial tension is not sustained, as in aortic incompetence, or where there is obstruction in the coronary arteries, either from atheroma at

the mouth or in the course of the vessels, a condition of arterial anaemia will arise, and the nutrition become inadequate and the heart dilate. Such cases are extremely common.

It was Sir William Jenner who first drew attention to the part which venous congestion may play in disease of the heart. When from any cause, either in the heart itself or in the lungs, the right auricle becomes engorged, the congestion, which makes itself evident in the great veins, affects equally the coronary veins which open into the auricle, and the same obstruction to the circulation occurs in the heart as in other organs. The blood will pass with difficulty through the heart, and its nutrition will therefore be impaired. This will no doubt in great part explain the occurrence of general cardiac dilatation, which affects also the left ventricle, in cases of mitral disease, or of chronic bronchitis and emphysema. The dilatation observed in some of these cases during life is sometimes remarkable, and may give rise to murmurs and physical signs which may often be most misleading.

The two following cases are of great interest from this point of view:—

Sarah A., aged 14, was admitted for severe bronchitis into the Chest Hospital, Victoria Park. She was much cyanosed. She had suffered from chronic bronchitis from early childhood. Besides the signs of bronchitis there was evidence of some consolidation of the left apex, and her fingers were remarkably clubbed. For the first two days in the Hospital she seemed to get worse, and appeared likely to die. There was profuse purulent expectoration, which almost suffocated her. The cardiac dulness could not be accurately defined from the emphysema present, but a loud systolic murmur was audible over the whole praecordial region, and also in the axilla. Three weeks later the bronchitis had disappeared, the apex of the heart was within the nipple-line, and the murmur completely gone.

Six months later I saw the child again with a slight return of bronchitis, but no murmur was present.

The second case occurred in a patient aged 42 (John S.) He was admitted into the Chest Hospital in February 1879 much cyanosed and suffering from very severe bronchitis. The lungs were emphysematous, the cardiac dulness could not be made out, and there was a loud systolic apex murmur, audible at the xiphoid cartilage, but loudest at the apex, and also heard loudly in the axilla. The case was thought to be one of mitral incompetence with secondary bronchitis.

One month later the bronchitis had nearly disappeared; the cardiac murmur was gone; but the apex of the heart was felt outside the nipple. He was then discharged, as well, he said, as usual.

In December 1879 he returned with another attack of bronchitis, but there was no murmur, and he recovered without being readmitted into the Hospital.

In February 1880 he came back again as ill as on his first admission, and he was again taken in. He was deeply cyanosed, and suffered much from dyspncea. The apex of the heart was indistinct, but seemed to be considerably outside the left nipple. The dulness extended $1\frac{1}{2}$ inches to the right of sternum. There was a very loud systolic murmur, audible at the apex, and also at the xiphoid cartilage, but fading between these two spots. It was also loud in the axilla and behind at the angle of the left scapula. It was thought that there must be both mitral as well as tricuspid regurgitation.

The patient got gradually worse. The murmur remained as described, and was always as loud behind and in the axilla as at the apex. He became very anasarcaous, and after lingering for two months, died.

Post-mortem there was general anasarca and considerable ascites; the lungs were remarkably emphysematous; the liver, kidneys, and spleen congested.

The heart was considerably enlarged, chiefly on the right side, the left ventricle being only about half the size of the right, and not visible at all from the front from the distension of the right side. Round the auriculo-ventricular sulcus the measurement was $12\frac{1}{2}$ inches, and from the base of the pulmonary valve over the apex to the auriculo-ventricular sulcus behind, the measurement was 12 inches, the heart being therefore nearly globular. The internal measurement of the right ventricle, from the base of the pulmonary valve to the apex, was $5\frac{1}{4}$ inches, the walls very thin, in the greater part not more than a quarter of an inch thick. The muscular substance of the left ventricle was brown and fatty. The valves and aorta were unusually healthy for a man of his age.

The post-mortem appearances of the case are simply those which would point to tricuspid regurgitation from dilated right heart. I cannot think, however, that during life the left ventricle was not much larger than it was found to be after death. Post-mortem appearances are, I believe, rather deceptive in respect of left-ventricle dilatation, for there is often clinical evidence of much greater dilatation than is found at the autopsy.

These cases may possibly be instances of tricuspid regurgitation only, though I am inclined to question so simple an explanation; for the systolic murmur could not, I venture to say, in the latter case, by any possibility have been distinguished from that due to mitral regurgitation. It was throughout as

loud at the angle of the scapula as at the apex; and it is difficult to understand how this could occur with tricuspid regurgitation only. I would suggest myself, that in both cases these murmurs have been true left-ventricle murmurs in consequence of the dilatation, the dilatation occurring as the result of the serious congestion in the cardiac circulation, and the consequent mal-nutrition of the muscular tissue.

I will conclude this paper with a table of the causes of dilatation of the heart:—

I. Blood supply defective.

- (a.) Blood insufficient in quantity.
 - 1. From reduction of total volume of blood (haemorrhage, wasting diseases, &c.)
 - 2. From defective circulation through heart.
 - (a.) Arterial anaemia (aortic incompetence, atheroma of coronary arteries, &c.)
 - (b.) Venous congestion.
- (b.) Blood altered in quality.
 - 1. Anaemia (hydræmia, oligocythaemia, leucocythaemia, chlorosis, cachexia, &c.)
 - 2. Toxic (fevers, jaundice, poisons, renal disease (?)).

II. Muscular tissue defective.

- 1. Atrophy of fibres.
 - (a.) Primary.
 - (b.) Secondary to interstitial deposits (fatty infiltration, fibrosis, &c.)
- 2. Degenerations of fibres.
 - (a.) Acute (acute fatty degeneration, &c.)
 - (b.) Chronic (pigmentary, fatty, &c.)
- 3. Inflammation of fibres.
 - (a.) Primary, granular or parenchymatous (fevers, rheumatic fever, &c.)
 - (b.) Secondary to inflammation of endo- or peri-cardium.

III. Nerve regulation defective.

The various neuroses of the heart (palpitation, exophthalmic goitre, &c.)

IV. Overwork.

“Dilatation” is the most important chapter in heart disease, for it is not the disease itself, but the weakness produced by it, which gives rise to symptoms and leads to risk of life. Dilatation is the prominent clinical expression of this weakness, and occurs, as the above table demonstrates, frequently where there is, in the broad general sense of the term, no coarse cardiac disease. The importance of the subject is my apology for the present paper.

CANCER OF THE PANCREAS.

BY

NORMAN MOORE, M.D.

During the years 1879, 1880, and 1881, I have examined post-mortem ten cases in which the pancreas was the seat of a new growth. In three of these cases the pancreas was the sole region of the new growth. In one other the amount of new growth was so small elsewhere that it may be assumed to have been primary in the pancreas. In the remainder the new growth was probably secondary in the pancreas. In all the cases but one the pancreas was enlarged; in one there were whitish nodules of new growth, some of them soft in the middle, and all with a definite boundary; with, in fact, precisely the physical characters of masses of medullary cancer in the liver. In the remainder it was not possible with the naked eye to distinguish the boundary of the infiltrated part of the gland.

The duodenal end was invariably the most affected part. On microscopic examination of the four cases in which the new growth was primary in the pancreas, I found two distinct kinds. In three cases the growth was a carcinoma, originating, as two specimens showed distinctly, in the epithelium of the acini. In these two cases the amount of connective tissue increase was not great.

In the third case of carcinoma the gland was smaller than natural, and from the naked-eye appearance it seemed doubtful whether any new growth was present. The section showed a carcinomatous growth of the same character as the others, but with a very large quantity of intermediate connective tissue (*Vide fig. 1*).

These three specimens were of one kind. The fourth was altogether different. Its section showed numerous transverse and longitudinal views of tubules lined with small-celled, ill-developed

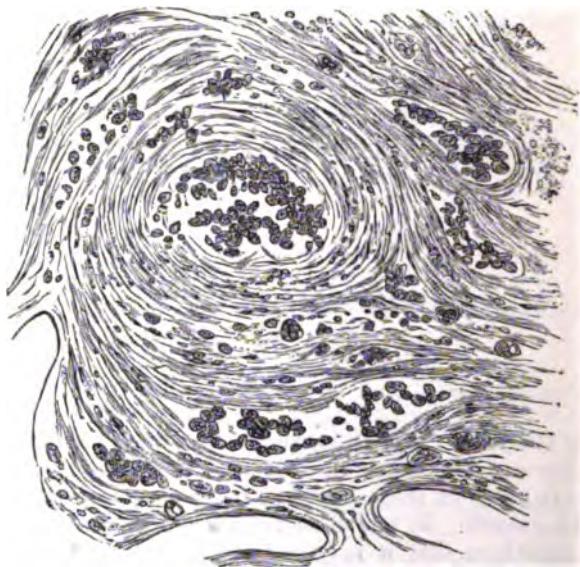


FIG. 1.—Carcinoma of Pancreas.

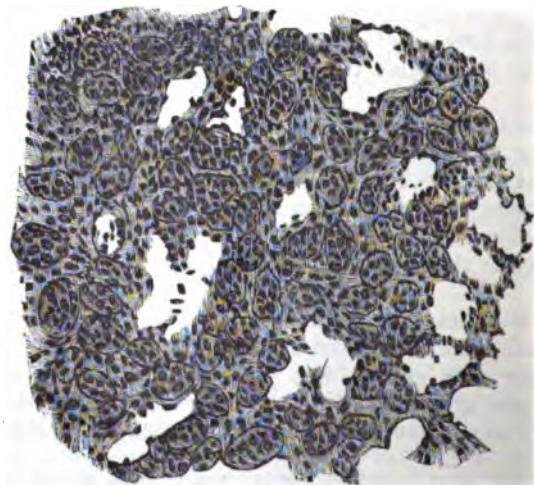


FIG. 2.—Adeno-Sarcoma of Pancreas.

epithelium. Larger epithelial cells were to be seen lying in the interstices of a basis of very abundant spindle cells. The epithelium was columnar in the ill-developed ducts, and the cells very small. These features are shown in fig. 2.

The very numerous ill-developed ducts associated with the abundant embryonic connective tissue are best described by the term "adeno-sarcoma."

This form of growth in the pancreas is not mentioned by MM. Cornil and Ranvier, and has not, I think, been described before; certainly not in England. I may add that I have shown my specimens and their description to Dr. Klein, and that he has been so good as to confirm their accuracy.

Before leaving the microscopic part of the subject, I ought to add that an examination of many other cases has shown me that a very hard pancreas is frequently not carcinomatous. In valvular disease of the heart one frequently finds the pancreas very much harder than natural, and occasionally intensely hard. It usually looks red, or is marked by red streaks, and the hardness seems due to continued vascular engorgement. But even when the gland is pale and shrunken as well as hard, it is frequently not carcinomatous.

The following case of cancer of the liver was one in which disease of the pancreas was possible, and even probable. The gland was intensely hard, and to the naked eye was indistinguishable from a small cancerous pancreas.

The patient was a woman aged 31 years, who died in Dr. Gee's Ward (Mary). She had had pains in her back for four months before her death, ascites for one month, and became jaundiced shortly before death. She had been a drunkard.

The post-mortem appearances were:—

Body.—Jaundiced; abdomen much distended. A scar (said to be from a blow) on left shin.

Abdomen.—The edge of the liver projected about two inches below the costal arch.

The liver was somewhat adherent to the diaphragm, but not at all to the abdominal wall. There was some ascites.

The liver weighed 110 oz. It was filled with nodules of new growth, only a few of which were softened in the centre. The others were very firm, and a section showed scarcely any true hepatic tissue.

Some gritty coagulated bile was found in the neck of the gall-bladder. The ducts were bile-stained throughout.

The surface of the liver was very uneven where free from nodules.

Pancreas small, very hard.

Stomach,
 Intestines, } normal.
 Mesenteric glands,

Spleen weighed 20 oz. No new growth in it.

Uterus, } normal.
 Ovaries,

Chest.—Lungs with several nodules of hazel-nut kernel size of the new growth. No adhesions.

Bronchial glands normal.

Heart small and wasted-looking; valves normal.

A microscopic section showed a very slight increase only in the connective tissue, the acini of the glands being quite normal in arrangement and appearance.

The case of primary cancer in which the new growth could be best traced from the glandular epithelium was that of a man, aged 64, who was a patient under the care of Dr. Church in John Ward.

The post-mortem appearances were:—

Body.—Intensely jaundiced; abdomen distended.

Abdomen.—On opening the body a great quantity of bile-stained serum flowed from the peritoneal cavity. The liver, of a green colour, was much exposed, partly owing to the very wide costal angle. The gall-bladder, as large as my fist, projected beyond the edge of the liver, and was in contact with the abdominal wall. It was distended by dark green bile.

Liver.—Very hard, surface nodular. On section, considerable increase of fibrous tissue was obvious to the naked eye.

Ducts.—The right duct, left duct, and cystic duct were slightly dilated. In the gall-bladder, beside the fluid bile, there was a little cholestrin sand, but no stone. The common duct readily admitted a thumb close up to the duodenem. The papilla looked a very little more prominent than normal. On squeezing it, a little unbile-stained mucus exuded. A probe was easily passed into the dilated duct.

The head of the pancreas was enlarged and very hard, and the closure of the common duct to its orifice and just outside the wall of the duodenum seemed only explicable as a result of pressure of the enlarged head of the pancreas, with some twisting of both pancreatic and bile duct.

Stomach normal.

Just outside of the pylorus, in the duodenum, was a depressed spot of the size of a sixpence and very deeply bile-stained. It had edges, but they did not float up under water, nor was there any breach of surface. It proved on dissection to be a diverticulum, and may perhaps have been a rudimentary pyloric cæcum, such as is to be seen in many fish. Rest of the intestines normal.

There was no enlargement of the lumbar or of the mesenteric glands.

Spleen not enlarged.

Kidneys jaundiced, otherwise natural.

A careful search was made for a new growth in bladder, rectum, and abdominal muscles, but none was found.

Bones cut normally, being neither harder nor softer than natural.

Chest.—Heart freely movable in pericardium; valves normal.

Lungs highly emphysematous.

Bronchial glands normal.

The intense jaundice and the fibrous condition of the liver are the most important points.

The case of cancer in which the section showed a very great increase of connective tissue, was that of a woman aged 44 years. The post-mortem appearances were:—

Body.—Lean; jaundiced. Legs slightly anasarcaous. Abdomen distended with fluid.

Chest.—Lungs adherent on both sides by slight, easily separated (old) adhesions; emphysematous. Heart freely movable in pericardium; valves normal.

Abdomen.—The large intestine greatly distended, and in the transverse colon somewhat constricted by an adhesion to the gall-bladder, to which the duodenum and a piece of ileum were also firmly adherent.

Gall-bladder.—Walls greatly thickened; cystic duct closed by thickened tissues. In the fundus of the gall-bladder were two stones of hazel-nut size in a recessed sac, and a little pale, thick, unbleile-stained mucus.

The common duct was greatly dilated, and contained two large stones. The one nearer the gall-bladder cylindrical, the interior one conical. The papilla in the duodenum was found, and a probe passed till it struck the conical stone.

Stomach,
Duodenum, } Normal.

Intestines,
Pancreas intensely indurated and shrunken.

Liver quite normal.

Kidneys hard and highly granular on removing the adherent capsule.

Ureters,
Bladder,
Uterus,
Ovaries, } Normal.

Suprarenals, }
 Abdominal lymphatics, } Normal.

The case of adeno-sarcoma was that of a man, aged 70 years, who was a patient under the care of Dr. Gee in Luke Ward. The clinical notes stated that a general enlargement of his liver was observed on January 19, while on February 19 his liver was found to be small. The post-mortem appearances were:—

Body.—Lean; deeply jaundiced; slight anasarca of legs.

Head.—Calvaria heavy, adherent to dura-mater.

Meninges, } Normal.
 Brain,

Vessels at base highly atheromatous. On the basilar artery, at its anterior termination, was a small aneurysm. On the right middle cerebral artery were two aneurysms, and on the left one aneurysm. None were ruptured.

Cerebral fluid deeply jaundiced.

Chest.—Costal cartilages ossified.

Lungs highly emphysematous, completely covering the pericardium; no adhesions.

Heart small; weight, 8 oz.

Numerous atheromatous patches in valves; many thickened patches on pericardium, but no adhesions.

Abdomen.—Considerable ascites.

There was a large tumour occupying the head of the pancreas.

The papilla in the duodenum was prominent. The duct could be opened by a probe, but was not bile-stained. It seemed to have been closed by pressure, combined with some traction from the tumour, which was quite free.

Stomach normal.

Liver jaundiced and very firm. No cancer. Undoubtedly cirrhotic. Ducts much dilated.

Intestines, } Normal.
 Kidneys,

In my ten post-mortems on cases of new growth in the pancreas, jaundice, usually long continued, was a prominent symptom, and during life the cause of the jaundice had of course been discussed, in some cases without any decision as to what it was.

Cancer of the pancreas is a disease on which the information to be found in books is so meagre that I prepared the following table of all the cases described from 1867 to 1881 in the records of post-mortems at St. Bartholomew's Hospital. The last ten were made by myself, the remainder were by my predecessors, as demonstrators of morbid anatomy, Dr. Church, Dr. Gee, Dr. Legg, and one by Dr. J. A. Ormerod.

TABLE OF CASES FROM 1867-81.

Sex.	Age.	Pancreas.	Jaundice.	Growth elsewhere.	Observer.	Other Notes.	No.
M.	59	Seirrhous. Cancerous; a ragged cavity in the gland communicating with stomach. Solitary, enlarged.	...	Stomach, oesophagus, liver. Stomach, liver, peritoneum.	Dr. Church. Dr. Church.	...	1
M.	65		...		Dr. Gee.	Hepatic duct half-inch in diameter, cystic not much dilated, cirrho- sis of liver.	2
M.	50		Deep.	...	Dr. Gee.	Hepatic duct half-inch in diameter, cystic not much dilated, cirrho- sis of liver.	3
M.	48	Cancer.	...	Stomach, liver, mesenteric glands.	Dr. Church.	...	4
F.	51	Cancer; duct much dilated.	...	Liver, gall bladder, lungs, right supra- renal, right ovary.	...	...	5
M.	49	Infiltrated with cancer throughout.	...	Dura mater, calvaria, ribs, kidneys, supra- renals, liver.	Dr. Church.	...	6
M.	54	In one mass with mesenteric glands; duct not implicated. Converted into a mass of new growth; duct dilated.	Deep.	One hempseed-size growth in liver only.	Dr. Gee.	Stomach and peri- neum normal.	7
F.	33		Not stated.	Ovaries, peritoneum, lumbar, supra-clavi- cular and mediastinal glands enlarged and infiltrated.	Dr. Gee.	...	8
M.	45	Head wholly converted into cancer.	...	Whole peritoneum, liver, cardiac end of oesophagus, stomach, right lung, and left pleura.	Dr. Gee.	...	9
M.	31	Wholly cancerous.	...	Both suprarenals, tissue round vena cava, liver full of malignant cancer, large tracts of cancer in the diaphragm, masses in the lung.	Dr. Gee.	...	10
M.	41	Tumour in the head and another in the tail.	Not recorded.	Tumour of mediastinum compressing root of lung, three tumours in lung substance, suprarenals size of duck's egg, similar growths in left kidney.	Dr. Legg.	Cirrhosis of liver.	11
M.	37	Head cancerous.	...	Pylorus, lungs, liver.	Dr. Legg.	Common duct dilated to size of middle finger;	12
M.	46	Hard tough cancerous mass.	Well marked.	Liver with white masses of new growth.	Dr. Legg.	liver deep green, cir- rhosis.	13

TABLE OF CASES—*continued.*

Sex	Age	Pancreas.	Jaundice.	Growth elsewhere.	Observer.	Other Notes.	No.
F.	47	Very tough, soft white tumour of walnut size about middle of gland.	...	Suprarenals of large size, bronchial glands enlarged, a soft mediastinal tumour, left kidney with small white soft nodules. Tough whitish mass in left lung.	Dr. Legg.	All the growths were soft.	14
M.	34	Cyst in gland size of chestnut, filled with puriform matter and surrounded by thickened gland tissue. Scirrhous.	Slight.	Stomach, nodules in walls (pylorus normal), lumbar glands, liver, gall-bladder.	Dr. Legg.	...	15
M.	38	Head of considerable size, filled with hard new growth.	Well marked.	Liver filled with masses of cancer and very large.	Mr. Thompson.	...	16
F.	53	Growth adherent at orifice, lying in duct, cancerous.	...	Liver many nodules, portal glands.	Dr. Legg.	Common ducts dilated to size of duodenum; liver dark green.	17
M.	48	Head full of softish cancer.	Present.	Liver, peritoneum, omentum.	Dr. Legg.	...	18
F.	65	Head filled with medullary cancer.	Present.	Liver.	Dr. Legg.	...	19
M.	36	Soft mass involving the gland, not traced to any one organ.	...	Peritoneum.	Dr. Legg.	...	20
F.	53	Head filled with cancer.	Present.	Liver.	Dr. Legg.	...	21
M.	48	Hard whitish patch of new growth in head.	...	Stomach, liver.	Dr. Ormerod.	...	22
M.	36	Mass size of man's fist projecting from head.	Present.	Enormous cancerous liver (weight 208 oz.); caecophagus.	Dr. Legg.	Common duct free from pressure.	23
M.	47	Head enlarged, thick, yellow.	Present.	Pylorus and duodenum.	Dr. Legg.	Liver not cancerous, small, jaundiced.	25
M.	56	Head occupied by a firm mass of medullary cancer.	Intense.	Liver filled with nodules of medullary cancer, one small speck in lung.	Dr. Legg.	Common duct impervious owing to pressure of a cancerous mass enclosing the two inches nearest the duodenal end.	26

TABLE OF CASES—*continued.*

Sex.	Age.	Pancreas.	Jaundice.	Growth elsewhere.	Observer.	Other Notes.	No.
F.	68	Head enlarged, firm, yellow.	Present.	Liver.	Dr. Legg.	Hepatic duct dilated to size of small intestine, many stones in gall-bladder.	27
F.	50	Head forms tumour size of fist, very soft, and filled with blood-clot.	Present.	Liver, stomach.	Dr. Legg.	...	28
F.	61	Head occupied by a firm, dense white tumour, below was a large ovoid smooth-walled cyst.	Well marked.	Liver.	Dr. Moullin.	...	29
M.	43	Involved in mass of new growth with stomach and peritoneum.	...	Liver and kidneys full of melanotic sarcoma.	Dr. Moore.	...	30
M.	45	Head much enlarged, containing several white masses of same physical and microscopic character as those in liver.	...	Liver (184 oz.), stomach.	Dr. Moore.	...	31
M.	73	Cancer.	Intense.	One small nodule in liver, lumbar glands.	Dr. Moore.	Cirrhosis of liver.	32
M.	46	Infiltrated with dense whitish growth, softened in parts.	...	Liver full of medullary cancer; cervical plexus (examined microscopically).	Dr. Moore.	...	33
F.	55	Infiltrated and enlarged.	Present.	Peritoneum in every part.	Dr. Moore.	...	34
F.	44	Hard cancerous.	Present.	...	Dr. Moore.	...	35
F.	51	Indurated in every part, duct much thickened.	Well marked.	Cardiac end of stomach, suprarenals, left lobe of thyroid, some of the lumbar and inguinal glands.	Dr. Moore.	...	36
F.	64	Infiltrated throughout.	...	Peritoneum, pleure, pericardium, abdominal glands.	Dr. Moore.	...	37
M.	70	Large tumour of head.	Intense.	...	Dr. Moore.	Cirrhosis of liver, ducts much dilated.	38
M.	64	Cancerous.	Intense.	...	Dr. Moore.	...	39

The table includes all the cases of cancer of the pancreas (using the term generally) recorded as examined post-mortem at St. Bartholomew's from October 1867 to October 1881. One case, in which the presence of a new growth in the pancreas was probable but not certain from the description, I have omitted.

Five of the cases (those numbered 21, 14, 11, 8), from the naked-eye description of the new growth and its distribution, may not improbably have been cases of lymphatic origin.

The other cases (where not determined by the microscope) may, from the general description, be inferred to have been carcinomata or sarcomata.

In fifteen of the cases the new growth was probably primary in the pancreas.

As regards age, these cases add nothing to the general rules as to malignant disease. The large majority were in patients of forty years and upwards.

TABLE OF AGE.

Primary New Growth of Pancreas.		
Over 30 and under 40		2 cases.
" 40 "	50	2 "
" 50 "	60	5 "
" 60 "	70	4 "
" 70 "	.	2 "

As to the occurrence of jaundice, the results are important.

Where the pancreas was the primary seat of the new growth, jaundice was always found.

In the twenty-four cases of secondary growth in the pancreas, jaundice was found in seven cases and was absent in seventeen.

Cirrhosis of the liver was found in seven of the cases of primary new growth, and in one case of secondary growth.

In general authors but little exact information is to be found on diseases of the pancreas.

Morgagni describes one clear case of cancer of the pancreas (xxxviii. 28), but makes no statement as to the presence of jaundice, and his case was one in which the new growth was probably not primary in the gland.

Dr. Wardell, in Reynold's "System of Medicine," and Fauconneau-Dufresne (Paris, 1856), mention pain in the back as a symptom of pancreatic disease, but do not exclude cases in which gall-stone may have existed, and give no clear view of the subject.

In the "Pathological Transactions," Dr. Wilks, Dr. Powell, and others describe cases, but without any general conclusions.

Cornil and Ranvier (ii. 972) describe induration and degeneration of the pancreas, lymphoma and carcinoma, adding that sarcoma is not known except as a melanotic tumour.

Murchison (*Diseases of the Liver*) mentions persistent jaundice, pain in the pancreatic region, and a sensible tumour as among common symptoms in cancer of the pancreas.

In the absence of well-arranged knowledge on the subject, I may sum up the conclusions which the observations of this paper support.

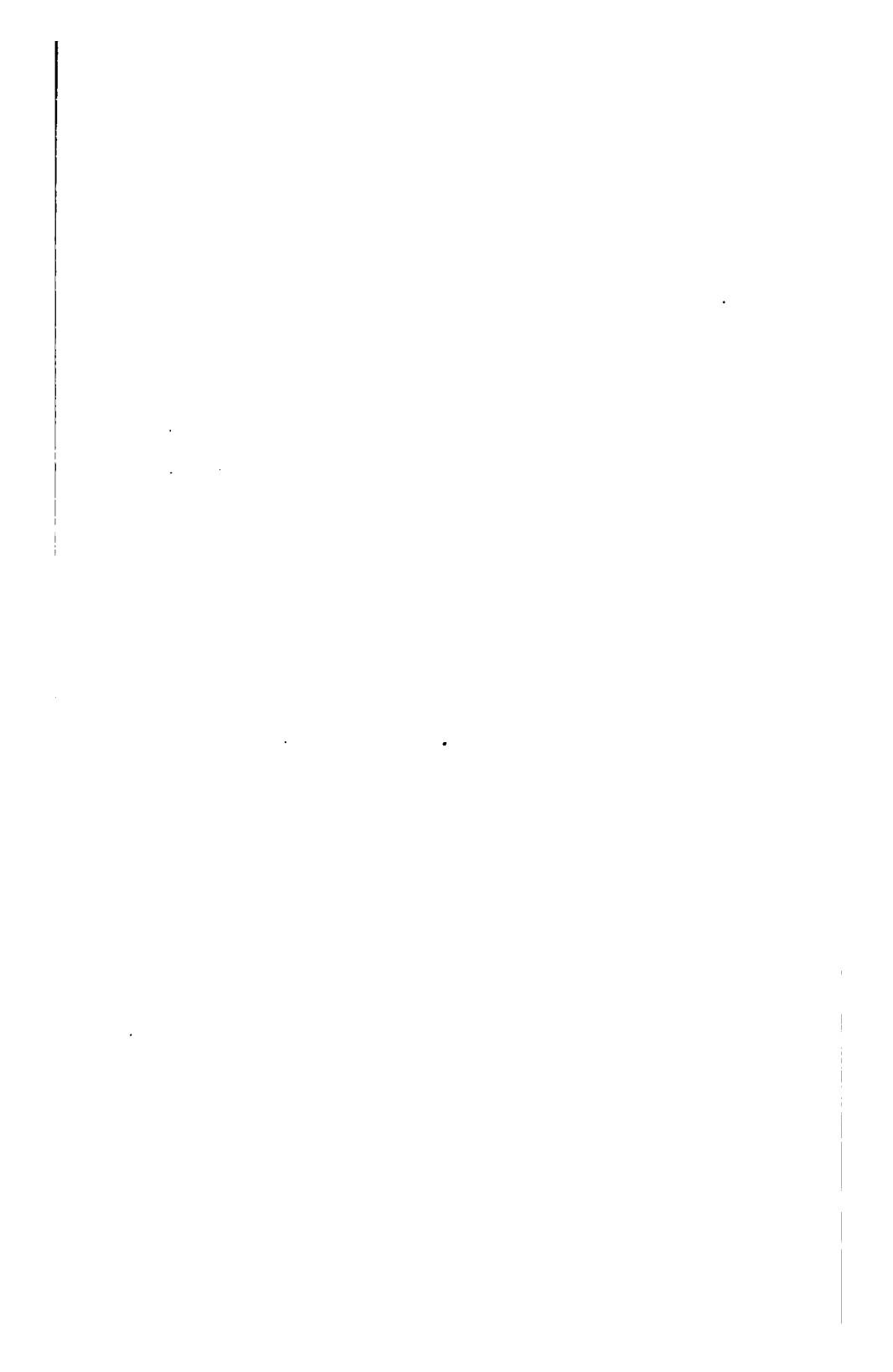
The pathological conclusions are—

That the pancreas is a seat of primary new growth, which, when carcinomatous, occurs at the usual period of life.

That it may be the seat of carcinoma originating in the epithelium of the acini, of adeno-sarcoma, and probably of lymphadenoma.

And the clinical conclusions are—

That long-persistent jaundice, in which gall-stone symptoms are absent and in which cancer of the liver is not to be felt, may probably be due to primary cancer of the pancreas; and that this diagnosis is confirmed when an enlargement followed by a diminution in size of the liver indicates during life the cirrhosis frequently found after death.



PARACENTESIS PERICARDII.

BY

W. E. STEAVENSON, M.B.

The notes of the following case were taken by Dr. Abercrombie, and kindly given to me for publication in this paper.

Sarah H., aged 5 years and 4 months, was admitted into the Hospital for Sick Children, June 1, 1880, under the care of Dr. Gee, to whom we are indebted for permission to publish the case.

Her mother told us that the child had been ill for three months with cough, and had been losing flesh and getting paler all the time. Previous to this illness she had always been healthy, and had had no infectious disease. She is an only child, two having died in early infancy. The mother has had two miscarriages. Parents healthy; no phthisis on either side.

State on admission.—Exceedingly thin and very pale. Left chest bulged and resistant; interspaces filled out; no vocal fremitus; dull all over up to right margin of sternum in front and to spine behind; no breath sounds audible except over root, where there is soft bronchial breathing. Heart's impulse palpable outside right nipple; cardiac dulness extends to right nipple; the sounds of the heart are obscured by loud creaking over this area. Some sharp râles in right axilla. Lies on left side. Fingers not clubbed. Spleen readily felt. Paracentesis thoracis was performed just in front of inferior angle of scapula, $2\frac{1}{2}$ oz. of pus being withdrawn.

June 2.—Child was much relieved by the tapping. Heart's impulse just inside right nipple; the signs in left chest have not cleared up so much as might have been expected; breath sounds

still absent in axilla; at midnight she was again tapped, 12 oz. of pus being removed.

June 10.—There has been some irregular fever. The signs of pericarditis have been more marked the last few days. Always lies on her left side.

This morning heart dulness reaches nearly to right nipple and up to clavicle, but the impulse is palpable to the left of the sternum as well as to the right; double friction sound all over praecordium; loudest at base.

In the afternoon she became worse; required to lie more over on her left side; the cardiac dulness reached farther to the right in fourth and fifth interspaces; the heart sounds were very distant and feeble; no friction could be heard, and her pulse was very small.

Dr. Gee was sent for, and on his arrival it was decided to tap the pericardium; this was done in the manner described below, and 5½ oz. of thin turbid serum withdrawn by aspiration. The child bore the operation without any anaesthetic admirably, and was much relieved; a friction rub was plainly audible directly afterwards. The serum rapidly formed a pale green coagulum.

On the following day the pleura was again tapped, 3 oz. of sero-pus being removed.

June 15.—There is some fever. Heart's impulse readily felt inside left nipple; dulness still extends beyond right margin of sternum; sounds weak; no friction. Percussion note unduly resonant in first two left spaces; breathing weak; no râle. Impaired resonance over left lower back; breathing bronchial in region of root, weak below, with abundant fine moist râles.

After this date there was not much change in the physical signs; she gradually got weaker; the abdomen became tense, tympanitic, and tender; a little diarrhoea set in, and she died on June 22d.

Examination of body eighteen hours after death.—Pericardium distended, extending from second left rib almost to right nipple on a level with fourth space; it is firmly adherent to left pleura and slightly to right. On opening the pericardium, the heart is found to be surrounded by dense layers of partially organised lymph more than a quarter of an inch thick, in the meshes of which there is some turbid serum. Both layers of pericardium much thickened. Heart flabby; no valvular lesions. Some pus in posterior part of left pleura, and large masses of organised lymph. Left lung much collapsed, lying against spinal column at upper part. Recent adhesions over right lower pleura. Recent general peritonitis. Other viscera natural.

In performing the operation of paracentesis pericardii in this case, a small trocar (about one-twelfth of an inch in diameter) was used with the aspirator, and inserted in the third left intercostal space about two-fifths of an inch from the sternum, at right angles to the chest wall, and to the depth of nearly one inch. No preliminary incision was made. The point of the trocar was felt to be free in a cavity, and the fluid at once, but slowly, drawn off. After the withdrawal of the trocar the puncture was covered by a small piece of adhesive plaster, and followed by no bad results; in fact, the patient was very much relieved by the operation.

The reason which led us in this case to puncture in the third interspace was the greater prominence of the chest wall in this situation, and also being about the centre of the area of dulness.

There are other reasons which lead us to suppose that this is a most favourable situation for performing paracentesis (but, of course, much cannot be inferred from one case). The pericardium is capable of great distension at this spot, just where the aorta arises from the left ventricle, and where the pericardium follows and invests the aorta for some distance, and then returns folded on itself. When much effusion has taken place, the fluid collects in this sort of *cul de sac*, and by distending the pericardium tends to draw it closer round the heart in other situations. This is, therefore, the spot where a trocar can be introduced with less chance of injury to the heart. *This is only the case where there is pericardial effusion.* A puncture in the third intercostal space about a quarter of an inch from the sternum, in a normal condition of the thorax, would most usually pass into the right auricle. Works on medicine seldom give directions for paracentesis pericardii; those which do, mention the fifth left interspace. A preliminary incision is directed to be made half an inch in length and the trocar introduced obliquely from below upwards. But a preliminary incision, if made, might seriously complicate a case, for should the patient survive the operation for any length of time, there would always be the risk of the wound becoming inflamed, and of inflammation extending from it starting a fresh attack of pericarditis.

Dr. Dieulafoy, from experiments made upon the dead body, came to the conclusion that the fifth left interspace at two centimetres from the edge of the sternum was the most suitable situation for performing the operation of tapping the pericardium.

It appears from reference to accounts of former operations that the situation chosen by us has very rarely been selected.

In a case recorded by Ferrari, the fifth left interspace was punctured.

In a case recorded by Potain, the eighth left interspace.

In a case recorded by Dr. M'Leod, the fifth left interspace, two inches from the sternum.

In a case recorded by Dr. Gairdner, the sixth left interspace, half an inch inside the nipple-line.

In a case recorded by Dr. Mader, first tapping in the third left interspace, an inch to the left of the sternum; second tapping, the third right interspace.

In a case recorded by Dr. Barlow, first tapping in the third left interspace; second tapping, the fourth left interspace.

In a case recorded by Dr. Clifford Allbutt, the fifth left interspace, an inch from the sternum.

In a case recorded by Dr. Saundby, the fourth left interspace, an inch from the sternum.

In a case recorded by Dr. Nixon, fifth left interspace, two fingers' breadth from sternum.

In a case recorded by Dr. Porcher, half an inch to the right and a little above the nipple (most likely in the fourth left interspace).

In 1870 Dr. Löbel of Vienna performed the operation in the third left intercostal space; the patient lived at least a fortnight; he was then again tapped in the third right intercostal space, and died the next day.

At a meeting of the Académie de Médecine de Paris on October 22, 1872, Dr. Chiron, physician to the Convalescent Hospital at Vesinet, communicated an interesting case of capillary puncture of the pericardium. The case in which it was performed was that of a young soldier who, at the end of an attack of pleurisy, presented all the symptoms of dropsy of the pericardium. The account goes on to say, "The introduction of a trocar into this sac has hitherto been regarded as a dangerous proceeding, and it has consequently been rarely performed." M. Chiron employed a capillary needle, by means of which he drew off a large quantity of sero-sanguinolent fluid which quickly gelatinised. No accident followed, and on the following day he found the patient lounging about the passages of the Hospital.

In January 1876, M. Henri Royer, in a paper before the Académie de Médecine de Paris, in which he records three cases of paracentesis pericardii, refers to the above case of M. Chiron (in October 1872), and says that two pints of reddish serum were removed; the cavity refilled, and death occurred seven weeks after the operation. At the post-mortem examination the pericardium was enormously distended, and contained about two pints of pus. False membranes were very numerous, and about one-third of an inch in thickness.

In a case of rheumatism followed by pericarditis, recorded by Mr. T. W. Bartleet of Birmingham in 1874, the praecordial dul-

ness extended from an inch to the right of the sternum to the upper border of the first rib. He introduced No. 2 aspirator needle, unguarded, into the space between the fourth and fifth ribs, two inches to the left of the central line of the sternum. The point of the needle was passed up against the chest wall as close as possible. Fourteen ounces of blood-tinged fluid, sp. gr. 1024, were withdrawn. At the latter part of the operation the needle moved with the contraction of the heart.

A successful case of paracentesis pericardii was performed at the Bristol Royal Infirmary by Dr. Shingleton Smith, in which the trocar was plunged in through the skin and chest at a spot between the fourth and fifth ribs, and halfway between the middle line and the nipple on the left side. Ten ounces of fluid were drawn off, the last few ounces being blood. The man was relieved by the operation, and subsequently left the Hospital to resume his ordinary employment.

In all these cases to which I have referred, when any directions for the operation are given, it is mentioned that the needle should be passed from below upwards against the chest wall as close as possible; another detail which was not followed in our operation at the Children's Hospital.

In Dr. Barlow's case at University College Hospital, reported in the "Practitioner" for October 1873, there was absolute cardiac dulness from the second intercostal space to three-quarters of an inch to the right of the sternum. At the first tapping, which took place on April 18, 1873, the puncture was made an inch below and three-quarters of an inch inside the left nipple in the third interspace (!). The trocar was pushed upwards and outwards. About $3\frac{1}{4}$ oz. of fluid were withdrawn, and the patient much relieved.

On April 26, paracentesis pericardii was performed a second time. "It seemed probable that the small quantity of fluid removed on the first operation was due to the trocar needle having been introduced too high and directed upwards. Mr. Heath, therefore, on this occasion, punctured directly through the skin into the pericardium at the upper border of the fifth rib, instead of the fourth. The canula was pushed in two inches deep; 6oz. of reddish-brown fluid were withdrawn." The symptoms were again relieved.

Paracentesis pericardii was performed in another instance at the Children's Hospital on January 14, 1876. The trocar was introduced in the second intercostal space, vertically, above the nipple. Some sero-pus withdrawn. The child was no worse for the operation.

Several cases have occurred in which the heart has been pierced in attempting the operation of paracentesis pericardii, but the accounts of some of the cases have not been published.

I am indebted to the kindness of Dr. Barlow for the notes of, and permission to publish, the following case. A female child, aged 1 year and 7 months, was brought to the Out-patient Department of the Children's Hospital in September 1876, moribund. There was a history of a small amount of water having been passed and of swelling of the feet; a bad cough for three months; worse for the last six weeks; vomiting for the last day or two. The child was cyanotic with a tallowy complexion; extremities cold; jugulars distended. The cardiac dulness extended from two fingers' breadth to the right of the sternum to two fingers' breadth to the left of the left nipple (the upper limit of dulness is not recorded). Heart sounds feeble. Impulse not well marked. Liver reached down to "Poupart's ligament." Lungs resonant.

The child was panting and almost pulseless; in fact, *in extremis*. It was believed that there was pericardial effusion.

The hypodermic syringe was introduced to the right of the sternum in the third or fourth interspace, vertically, the child remaining quite passive.

About one drachm of black blood was drawn off. There was no alteration in the symptoms for better or worse, and the child died in about half an hour's time.

In the 8th volume of the "Clinical Society's Transactions" there is reported a case by Dr. Evans in which the right ventricle was punctured, and with evident relief to the patient.

In this case the cardiac dulness extended from the second intercostal space, and from the right of the sternum to beyond the left nipple. Bulging of the chest wall was marked. "Mr. Hulke inserted a fine trocar and canula to the depth of about half an inch in a spot in the fourth interspace, about half an inch to the left of the sternum. On removing the trocar, a gush of dark blood issued from the canula, and the instrument was felt to be moved, as if in accordance with the action of the heart. The canula was immediately withdrawn, not more than about a drachm of blood having been removed. During the operation, no change was observed in the patient's pulse. After the operation she seemed to be to a small extent relieved." At the post-mortem examination the heart was found to be greatly enlarged, and weighed $22\frac{1}{4}$ oz.

The report ends with the following observations:—"This case seems to be of some interest in more than one respect. It illustrates the difficulty of diagnosis between pericardial effusion and distended heart. In this case we knew that we had a very large heart to deal with; nevertheless the rapid increase in the dull area after admission and the bulging of the chest wall, together

with apparently considerable muffling of the sound of the heart, seemed almost certainly to indicate fluid in the pericardium.

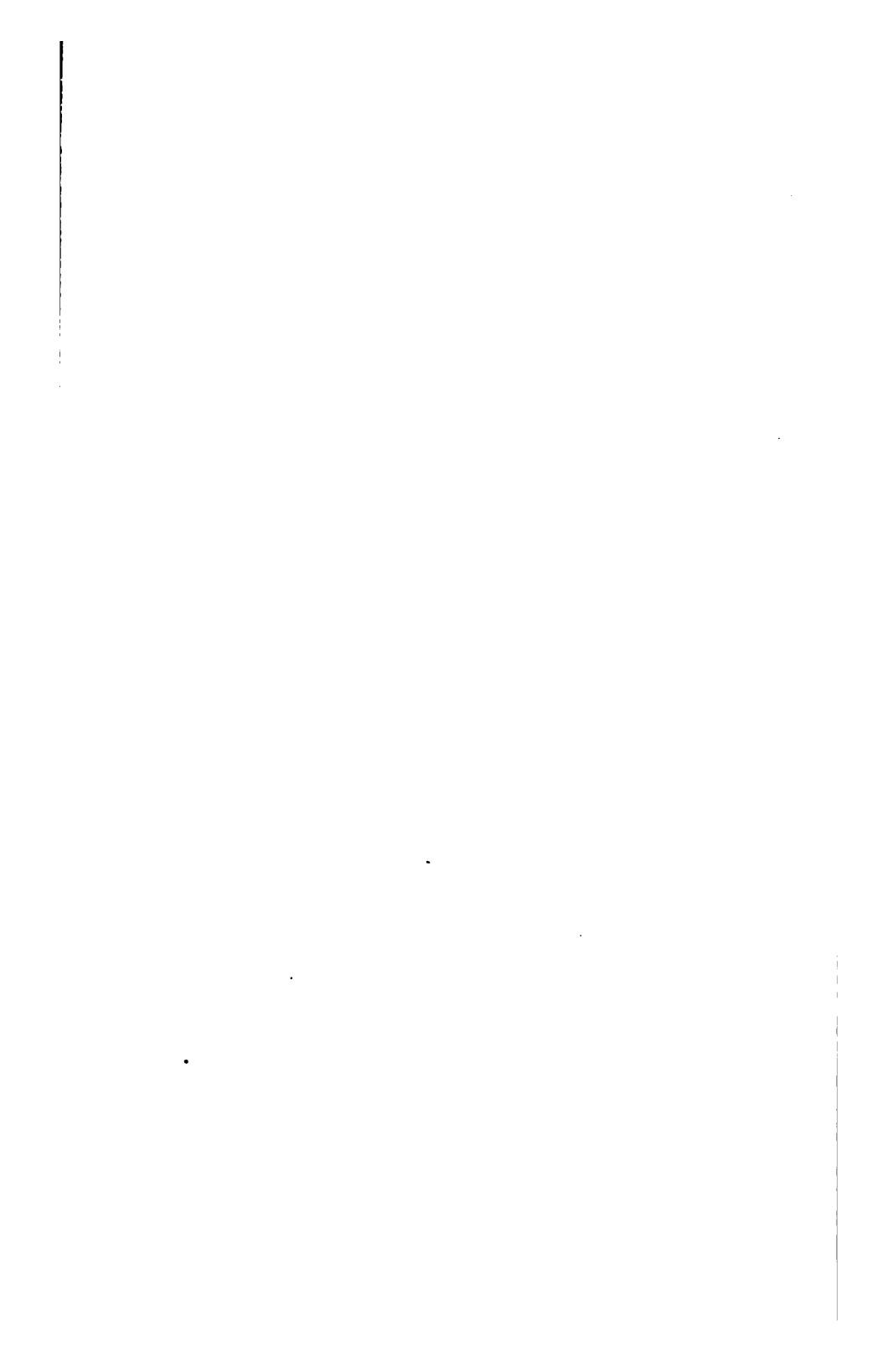
"Farther, this case also appears to prove that the right ventricle may be punctured, not only without any ill effects, but with the result of relieving the severe distress produced by an over-distended heart. In this case I think there can be no doubt that the right ventricle was punctured, and a very small quantity of blood withdrawn. The patient, who before the operation was almost moribund, rallied after it, expressed herself as being relieved by it, and lived for nearly four weeks, the distension of the heart having gradually diminished."

The question presents itself, should paracentesis pericardii be resorted to?

The greatest difficulty exists from the physical signs to be sure that there is pericardial effusion, unless the dulness caused by the effusion extends to a very high level. An increased area of cardiac dulness at the lower part of the thorax cannot be distinguished from that caused by an enormously hypertrophied heart, and therefore paracentesis is hardly justifiable unless the patient is *in extremis*. It is even then a somewhat startling incident to introduce a trocar and for the patient to fall back dead. In adults there is seldom any marked bulging of the thoracic walls, but in children, of course, it is otherwise, and the diagnosis more easy.

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CASE OF
STENOSIS OF THE TRICUSPID VALVE.

BY
NORMAN MOORE, M.D.

During the year 1880 Dr. Bedford Fenwick read a paper at a meeting of the Pathological Society on stenosis of the tricuspid valve, in which a table of nearly fifty cases (examined post-mortem), which he had collected from medical writings, showed that this morbid appearance has been recorded in women much more often than in men. The post-mortem records of St. Bartholomew's Hospital (from October 1867) contain thirteen cases which support Dr. Fenwick's view of the greater frequency of tricuspid stenosis in women. I have given him the details of these for addition to his tables, but may here give a short summary of them before proceeding to describe a somewhat noteworthy example of narrowing of the tricuspid orifice which I have since met with in a male.

Cases of Tricuspid Stenosis.

No.	Year.	Sex.	Age (in Years).	Condition of Other Valves.			Condition of Pericardium.
				Pulmonary.	Mitral.	Aortic.	
1	1868	F.	35	Thickened	Diseased	Normal	Normal
2	1870	F.	23	Normal	Normal	Normal	"
3	1871	F.	49	"	Constricted	Diseased	"
4	1872	F.	48	"	Constricted	Diseased	"
5	1872	F.	40	"	Constricted	Diseased	"
6	1872	F.	60	"	Constricted	Diseased	"
7	1873	F.	53	"	Diseased	Diseased	"
8	1875	F.	28	"	Diseased	Diseased	"
9	1877	F.	36	"	Constricted	Normal	Adherent Normal
10	1877	F.	24	Thickened	Constricted	Diseased	"
11	1877	F.	48	Normal	Diseased	Diseased	"
12	1878	F.	23	"	Constricted	Diseased	"
13	1879	M.	19	"	Diseased	Diseased	"
14	1881	M.	16	With growths	Constricted	With growths	Recent pericarditis

The post-mortem examinations on these cases were made and described by successive demonstrators of morbid anatomy, viz.—Dr. Church, No. 1; Dr. Gee, Nos. 2, 3, 4, 5, 6, 7, 8; Dr. Legg, Nos. 10, 12; myself, Nos. 9, 11, 13, 14.

Dr. Church has described the heart of the first of these cases in the "Pathological Transactions," 1868, vol. xix. p. 188, and has given a drawing of a remarkable malformation which he found in the left auricle. His description is, "On laying open the left auricle, it was seen to be divided by a membranous septum which extended completely across it, separating the portion of the auricle in connection with the septum auricularum, and that into which the pulmonary veins open, from the auricular appendage, and the portion immediately in connection with the auriculo-ventricular opening. The only communication between these two chambers was by means of an elliptical opening, measuring four-tenths of an inch in its transverse by seven-tenths in its longitudinal diameter; this opening was situated in the upper part of the septum. The general shape of the upper chamber was somewhat like a funnel, the neck of the funnel resting on the base of the septum ventriculorum."

The last case is an example of another malformation of the left auricle which was also associated with tricuspid stenosis and other valvular disease.

The patient was a boy aged 16 years, who died in Matthew Ward on June 30, 1881. I made the post-mortem examination on the following day. The immediate cause of his death was pericarditis. There were some haemorrhagic infarctions of his lungs, and his liver, spleen, and kidneys were greatly engorged. The brain and other parts were normal.

Heart.—Pericardium: distended with turbid fluid, both surfaces covered with lymph.

Muscular substance: left ventricle slightly hypertrophied.

Endocardium: some small adherent clots in the right auricular appendix; tricuspid valve, flaps adherent, orifice barely admitting the tips of two fingers; all round the edge numerous minute growths, three cords much thickened.

Pulmonary valves: competent, but on the surface of each a row of minute growths.

Mitral valve: flaps adherent and all cords much thickened. The orifice barely admitted the tip of one finger.

Left auricle: the valve of the coronary sinus was normal, but above it was a shelf-like projection extending about one-fourth across the auricle, so as to divide it imperfectly into an upper and a lower part. This projection originated in the septum of the auricles, and its base contained some muscular fibre. It was

covered by endocardium, and had no growths or roughnesses upon it. The foramen ovale was closed. The shape of the auricle was normal.

Aortic valves: thickened and incompetent, with a few minute growths.

Aorta and pulmonary artery: normal.

Some writers have maintained that tricuspid stenosis is invariably congenital, and such a case as this, where there is an obvious congenital malformation in another part of the heart, would seem to support the view. A general and fatal objection to it seems to me to be the fact that narrowing of the tricuspid valve is almost invariably associated with signs of endocarditis in other parts of the heart. It is surely far more probable that the tricuspid thickenings and adhesions are due to the affection which produced the precisely similar appearances in the mitral valve than that the tricuspid disease is congenital and the mitral disease acquired.

This case gives further evidence that tricuspid stenosis is due to endocarditis, and is not congenital. The three flaps of the valve were adherent, but the line of adhesion was well marked, and was on each side a red streak going towards the muscular wall from the edge of the valve. Close to the muscular wall the adhesion was firm, but in its outer third it was readily broken and was obviously recent.

The specimens commonly described as malformations of the heart may be divided into two classes—(1) those due to foetal endocarditis; (2) true varieties of cardiac structure. The auricular shelf in this case was clearly of the latter class, and was only accidentally associated with the endocarditis, which had attacked the tricuspid, pulmonary, mitral, and aortic valves.

TWO CASES OF
SUBACUTE ANTERIOR SPINAL PARALYSIS,
WITH THE PATHOLOGICAL CHANGES IN THE
SPINAL CORD IN ONE OF THE CASES.

BY
CHARLES A. MORTON.

CASE I.

I am indebted to Dr. Gee for the following case:—
William A., aged 29 years. Admitted into Luke Ward on
March 10, 1881. The notes by Mr. C. E. Paget.

He does not remember having suffered from any diseases other than those common in childhood, until he had his first epileptic fit fourteen years ago. He then became subject to epileptic fits (not very frequent) until fifteen months ago, when he had the last. He denies syphilis and intemperance.

For two months past he has felt frightened about standing up lest he should fall; nor could he, if walking, tell when his feet were coming to the ground. Seventeen days ago, while crossing a street, he fell in trying to put his foot on the kerb. He was taken home and put to bed. Since then his legs have become weaker and weaker, until now he cannot stand at all. He never had any loss of power in his arms, or of sensibility anywhere.

He says that his memory has been failing of late, but otherwise his mind seems natural.

When he tries to stand, his legs double up under him, being unable to support him in the least; he sits with difficulty. No patellar tendon reflex. The muscles of the legs are wasted, but not excessively. Some muscles need very strong faradic currents to get them to contract. Thus, using the primary current of a

battery which causes healthy muscles to contract at a register of 3 or 4, in the right leg tibialis anticus needs 11 to 12; extensor longus digitorum, 14 to 15; peroneus longus, 7; muscles of calf, 3; rectus femoris, 12 at first, but in a fortnight's time it could not be got to contract with the strongest primary current we had. In the left leg tibialis anticus, 11 on admission, but 6 two weeks afterwards; peroneus longus, 13 on both occasions; muscles of calf, 16 on admission, but 4 two weeks afterwards; rectus femoris, 15. This would seem to show that whilst the disease progressed in some muscles it tended towards repair in others. He was certainly able to move his legs better latterly than at first.

He sometimes had a little difficulty in passing his water; it did not dribble from him; there was no retention.

He suffered from pulmonary catarrh on admission, and it steadily became worse. The temperature in the armpit varied between the normal and 102°. Beyond an increasing difficulty of expectoration, there was no other change in his condition until the evening of March 27, when he had an attack of dyspnoea. The physical signs were those of a catarrh diffused over both lungs. The muscles of respiration (intercostals and diaphragm) acted well, yet there was great difficulty in expectoration. His arms did not become paralysed. He died on the morning of the 29th. The fatal dyspnoea did not seem to be due to bulbar paralysis (because there were no distinctive signs of that lesion), but to an accidental pulmonary catarrh; the exacerbation concurred with a very bleak north-easterly wind. His friends refused a post-mortem examination.

CASE II.

The patient, a woman aged 50, was admitted into Leicester Infirmary on January 11, 1881.

For one month she had suffered from gradual loss of power in the lower limbs. There had been no incontinence of urine, nor difficulty in passing it. The loss of power had been accompanied by considerable pain in both legs. She had not had any pain in the back. The arms had not been affected in any way.

When admitted, she could move either leg as a whole quite well, but could neither flex nor extend the ankles or toes. The inability to do so was complete in both feet. There was considerable atrophy of the muscles of both legs, atrophy quite out of proportion to mere disuse. In both legs and feet the sensibility was natural. The faradic current, of considerable strength, caused no contraction of the muscles of either leg or foot. There was loss of patellar tendon reflex in both legs. No ankle clonus could

be produced. Slight oedema was present in both legs. There was no rigidity of the legs, nor were there any spasmodic movements.

Besides the paralysis of the legs, she suffered from symptoms of phthisis, and physical signs of that disease were present.

On January 16, the legs were in the same condition as on admission; the pain in them continued. The phthisis progressed rapidly.

She died from the phthisis on February 3. She could to the last use the arms quite well, and she never had any difficulty in articulation or deglutition.

Post-mortem.—The spinal cord appeared normal; the membranes were healthy, and the cerebro-spinal fluid quite clear. The pathological changes of pulmonary phthisis were far advanced.

The post-mortem examination was made eighteen hours after death, and the cord at once placed in bichromate of potash solution. Sections were made from the upper dorsal, and from the upper and lower part of the lumbar regions, and were stained with carmine.

I am indebted to Dr. Klein for kindly examining these sections for pathological changes.

In these sections of the cord the grey matter appears infiltrated with small round cells, and this infiltration is greatest in the grey commissure. In the upper dorsal region this infiltration is only apparent in the grey commissure and in the tractus intermediolateralis; but in the lumbar region the whole of the grey matter is thus infiltrated.

The blood-vessels of the grey commissure are enlarged, and in the perivascular lymphatics can be seen a great many of the same kind of cells as those which infiltrate the grey commissure.

Many of the ganglion cells of the anterior cornua are not equally stained by the carmine throughout. Instead of the whole cell being stained pink, portions of it are of a yellow colour. This yellow colour is in some cases seen in half the cell, in others in only a small portion of it, but the yellow colouration is never present in the centre and not at the circumference as well. In the ganglion cells thus changed in colour the nuclei are quite distinct and well stained by the carmine, and the branching processes are natural. This change in the cells, though apparent in the dorsal region, is most distinctly marked in the lumbar. These cells are not at all atrophied. One of them contained two large vacuoles.

The substance of normal ganglion cells is uniformly stained by carmine, therefore that part of the cell which is of a yellow colour, unstained by the carmine, must be pathologically changed, so that it retains the original colour of the bichromate solution in

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which the cord was hardened, and resists the staining action of the carmine.

Many of the nerve fibres in the external popliteal nerve are very much degenerated, the whole fibre readily staining with carmine.

The pathological conditions consisted in this case in a change, the nature of which is uncertain, in the ganglion cells of the anterior cornua; in cellular infiltration of the grey matter with enlargement of the blood-vessels; and in degeneration, probably consecutive to the change in the anterior ganglion cells, in many fibres of the nerve supplying the paralysed and atrophied muscles.

ON
ACUTE AND CHRONIC INSANITY.

BY

T. CLAYE SHAW, M.D.

It is customary to consider a person who has been insane for a period longer than twelve months as a "chronic" case. A greater mistake cannot be made, nor one more injurious to the prospects of the patient. The element of time has everything to do with the chronicity of a case, as we are in the habit of interpreting the term "chronic," but it ought not to have, unless we limit the definition to the continuance of a certain group of symptoms. Two cases may be isochronous as regards the time that has elapsed since the symptoms began, but one may be acute whilst the other is really chronic. The importance of recognising this distinction is that it is a common custom in some lunatic hospitals to discharge a person at the end of a certain time (generally twelve months) as "chronic and incurable," and to transmit him to some other asylum for "chronic" cases, where he is to be, as it were, put on the shelf and counted as practically dead for all that treatment can do for him. There must be many physicians, then, who have never watched a case of acute insanity through all its phases, unless it be one that has recovered within twelve months. Again, what are called "chronic" asylums are built on the mistaken idea that a person who has been insane a certain time may be weeded out of the "acute" asylum and placed in the limbo of decayed minds, where all that is required for him is that he should be sufficiently fed, clothed, and amused, and whilst being generally prevented from flagrant opportunities of harming himself or of escaping, shall be maintained at the lowest possible expense, a supervision little better than a lay one being all that is required. The result of this scheme is that the so-called "chronic" cases develop their supposed apathetic and placid career in a way

altogether different from what was expected. In many instances they recover entirely; in others, suicidal, homicidal, destructive tendencies, delusions, and all the train of so-called "acute" symptoms develop themselves, and the "chronic" asylum is found not to have the means of treating safely or successfully these off-scums of the "acute" building. Not that these symptoms are necessarily a consequence of removing the patient from one part of the country to another; they would have happened equally, and probably at the same time, had no change of situation taken place, and are, in fact, the natural course of the disease. What physician of even the greatest experience shall predict the course of a form of insanity without finding himself so often deceived that his prognostics become probabilities more than positive assertions? I assert without fear of contradiction that asylums for "chronic insane persons" are a practical blunder if they are made of large size and of a structure regulated by the idea that time has really anything to do with the "chronicity" of a case. I have seen, and see daily, persons who have been ill for five, ten, fifteen years and longer, who are really still in the acute stage of their disease, who are different now from what they were last year and the year before, both in speech and action—persons whose brains are in a state of progressive disease, the wave of morbid process passing slowly from one part to another, and keeping up an acute variety of changes which constantly manifest new creations of disordered thought or action; such persons might any day put an end to the idea that because they have been so long harmless they will always be so, by putting an end to themselves. No insane person is to be trusted, for we can never be sure that we have really a "chronic" case to deal with, *i.e.*, a case in which certain cells are effected, and where the disease will not spread; for post-mortems prove to us that there is a progressive disease of the different parts, which must have all along, had we known it, accounted for the different groups of acts and symptoms as they have arisen. In fact, the brain may be in a state of acute and chronic disease; hence the demented may become violent, the homicidal man philanthropic, and the depraved and destructive a model of virtue. I have now under treatment a man who singularly illustrates the roving character that disease may take. This patient has been in a state of isolated lesion, if I may use the phrase to express a very small group of absurd ideas—ideas, so far as it was possible to tell by frequent and familiar conversation, not connected in any way with his ordinary actions nor influencing his mental relations. Indeed, I have often thought of discharging him; but of late, *i.e.*, during the last few weeks, it is evident that

another lesion is going on, probably an extension of the old one; his delusions are ramifying in extent and intensity, his social relations to his fellow-patients are changing; and I shall not be surprised if this man, who has hitherto been trusted and faithful, becomes treacherous and violent. Yet he is said to be a chronic lunatic! Why, the man is really as acutely insane as a woman who is in her first week of puerperal mania, and no guide-post is at hand to show us to what ultimate destination his lesion will take him. The great complexity of the brain and the subtleness of interconnection of its parts will probably long prevent our arriving at a prognosis of symptoms, and so we are placed at a disadvantage to which specialists of other organs are not exposed. A physician treating a case of organic heart disease can foretell with tolerable certainty the course of phenomena; he knows that certain obstructive symptoms will appear, and on the slightest sign of distant parts becoming affected, he can safely predict the ascites, or oedema, or ulceration that must come; and knowing what must result in the regular order of things, he can forestall such contingencies by remedies, and put off the fatal day. But in treating brain disease we are shooting blindly, and as often fail as hit the mark. We find ourselves suddenly surprised by the appearance of a dangerous symptom where we thought ourselves most safe, and it appears that territory has been invaded by the disease when we were looking for the skirmishers in another direction. A chronic insane condition, i.e., one remaining the same for a long time, is rarely seen except in persons who have for a long time been resident in asylums—(I am not, of course, speaking of those in whom most of the faculties are obliterated by general brain degeneration, such as we see in dementia)—where they have been exposed to the same daily routine for years, engrossed by the same existing delusions, in whom, in fact, there has been simply a renewal of brain without a development or growth of it, and in whom the morbid process is stagnant. This is the class for which little can be done; they are in their "chronic" state, in precisely the same condition as they were when called "acute;" and as regards their symptoms, they might still be called acute. Time has had no effect in modifying either the extent of the disease or the manifestations of it; and to give to it the term "chronic," except with the distinct understanding that we merely intend that it has lasted a long time, is wrong. Such an individual is as much in an acute state at the end of some years as in a chronic one. If "acute" and "chronic" mean different conditions, the person never was in either.

I have before me an instance of a young woman, who, two years

ago, began to talk in the same placid, deluded way as she now does; her pulse was as calm as it is now, her temperature as equable, her delusions of the same extent of radiation; and if she is not now in an acute state, she never was, not even at the time she was taken ill. We can understand a lesion of a certain tract of the brain remaining confined to that part and creating the most violent thoughts and conduct, lasting for years, with all the accompaniments of homicidal and destructive tendencies. This attacking cause migrates; the man, in fact, becomes the subject of an "acute" attack, and his nature is changed. Other and harmless delusions appear and gradually subside, and he returns to health; so that, unless we accurately understand what we mean by the terms "acute" and "chronic," we shall have the man placed in a class from which we should expect little improvement. Truly in insanity it is impossible to say what cases should have the terms "acute" or "chronic" applied to them, and what advantage is gained by retaining such a distinction. True sanity consists in striking a correct balance between what we desire and the means we use to obtain it, and moral insanity is the failure in the individual to see this relationship. Accordingly moral insanity is found to be the result of disease or of original defect of nerve structure. In the latter case, it is never possible to obliterate the "moral obliquity," because the substance is absent or defective by means of which the balance of objective life-action is maintained, and so what is taken to be an acute outbreak of moral insanity is really of long standing, though previous peccadilloes, having been of little consequence, not bringing trouble to the individual, the defect has been overlooked. In the former—cases of disease or injury—the moral insanity may be the first symptom, or it may develop after the so-called intellectual insanity has been first in order to occur and has lasted some time, and is due—or *may* be—to an increase in the lesion as to extent or character, so that a patient who has been classed as a "chronic lunatic" or a "chronic imbecile" (using the loose phraseology that is sometimes applied) may really be undergoing an acute stage of progressive disease; and if this is not correctly estimated, all opportunity of treatment is lost, and an incorrect view is taken of the pathology of the case. I can give an instance in point of a patient, an imbecile, who, up to a few months ago, was quiet and well-behaved, useful to others, and, though simple in her manner, still able to enjoy life with only the amount of restraint that a patient in a quiet ward would require. Gradually, however, she became quarrelsome, hypocritical, addicted to bad language, and, in fact, exhibited the usual train of iniquities called "moral" insanity. She is now, without having developed any delusions, in

a state of acute insanity, as manifested by those moral obliquities, and I view her as unfit to be at large, as if she were suicidal or dangerous. By treating her I shall hope to cure or relieve these symptoms, but shall not be surprised if she exhibit in due time other signs of "intellectual" insanity, because it is recognised that her new symptoms are acute, and that though she has for years been incarcerated in asylums, she is not to be considered a chronic case.

Growth of brain in diseased persons.—When we come to consider that the brain of insane persons grows and develops, it is scarcely to be wondered at that the symptoms of insanity may change, and, as character is modelled by the individual surroundings, we ought to see—as indeed we do—the new development or growth brought within the range of diseased influence. The extent to which this may proceed will, of course, vary with the age of the patient and original brain-calibre, but it is difficult to see how any disease of the brain can really be stationary, i.e., chronic. From this consideration is deduced the necessity for early treatment, and for separation of the individual from circumstances that give a wide range to cerebral action, because we may hope to limit the induced reflex action of the brain by arresting the disease before its ramifications have become fixed, and by seclusion we narrow the formation of new ideas which may come under the influence of the existing morbid ones.

I have often been struck with the sudden development of an acute attack of insanity in persons who have been discharged after a more or less prolonged residence in an asylum. It seems as if the sudden development of new or revival of dormant old ideas produced by the expanded relations into which they are again introduced sets up a very active reflex state of brain, which upsets the balance of a mind that has long moved in a narrowed sphere. A few weeks ago I discharged as cured a woman who had for several years successively been an inmate of asylums. As far as her actions and conversation went she was quite rational, and no history being obtainable of "recurrent" attacks, I sent her away. But though I had known her to be in this state several years, she was no sooner placed in her original relations than she developed a most excited maniacal state, which lasted some months, and is only now beginning to subside. She will perhaps return to the quiet condition in which her mind lay before her discharge, because she was not long enough out for new impressions to have taken great hold on her, but she may be permanently changed.

That changed relations of existence are often beneficial is within the experience of most asylum physicians, and I have known a patient who had been under restraint fourteen years recover on

removal to another asylum, where the change of new surroundings in a short time cured the "chronic" insanity with which she had been credited. A reliance on this fact—the power of influencing the growing brains of insane persons—enables us often to entirely modify the characters of patients, to produce, as it were, an acute amelioration of morals and ideas; and, *vice versa*, unless care is taken in the surroundings in which an insane person is placed, the influence may be so bad as to absolutely demoralise him. This is one of the evils of institutions where the accommodation is limited, and recent cases have to be associated with persons capable of impressing unfavourably the growing or developing brain-tissue.

That the fallacy of estimating too highly the time that a set of symptoms has lasted is dangerous, is well illustrated in the case of a man in this asylum who was transferred as a "chronic" case from another asylum. Certainly the man had been in the same demented state for many months, but on close observation it was evident that a progressive change was at work in him. Though lost apparently to all objective impressions, unclean in his habits and oblivious of wants, a certain muscular uneasiness began to be developed, and the radius of these gradually extended itself, till, from being motionless, he became choreic; from being speechless, he first developed jerking grumbling sounds, and then commenced to talk. Delusions freely expressed are now the mark of his disease, but he is able to employ himself, and I fully expect his ultimate recovery. We are now careful to occupy this man's mind in such a manner that the fresh impressions he is receiving shall if possible be prevented from coming within the sphere of his delusions, and that the healthy ideas may, in the evident instability of the morbid process, influence for good the part that is not yet normal.

What caused the change in this patient? It could not have been any difference in the treatment, for I am bound to confess that until we saw that he was in a transitory state no especial notice was taken of him. It can scarcely in his case have been the change of scene, because he was apparently too introspective or too demented to be able to derive any advantage from objective impressions. He was really in an acute state of disease, changing gradually and almost imperceptibly from day to day, and it was really the migratory character of the lesion, influencing only slightly the parts over which it passed, that saved him. One could almost trace the course of the wave as it seemed to pass from one frontal convolution to another, setting up vibrations, in discord it is true, but gradually losing their amplification.

As definition advances in the location of cerebral functions, we ought to be able to utilise in treatment the method of (as it were)

enticing the disease from one part to another, of lessening its grip in a much-worn and hypersensitive portion, and provoking it to spend its fury on a coarser or less highly functional part. For instance, there is little doubt that in ideational insanity the frontal lobes are especially excited, and that the incoherence and violence are due to the irresponsible and irregular reflex action of the cells of the ideo-motor centre of this part. If we only knew the functions of the brain posterior to the central sulcus with anything like an approach to the accuracy with which we know those of the parts anterior to it, we should, I think, be much better placed for determining an impression calculated to antagonise the lesion in point—an impression that might be carried to a condition of actual *irritation* of the nucleus of what might be made a diseased centre.

Surgery.—Some believe that the future of the treatment of insanity lies in the surgical direction, and to a limited extent this may be true; but besides treatment by medicines proper, we must chiefly rely upon the power we have of influencing brain-action by means of the external prolongations. A very good instance of the different manifestations provoked by the change of tract of disease is shown in a patient who has been here more than four years, and who, therefore, if time had anything to do with it, might well be called a chronic case; in fact, he was transferred to us as being such. This man showed many signs of the early stage of general paralysis, but gradually became demented and quite changed in character, morose and threatening, whereas before he was gay and affable. He then ceased to speak to any of us, though looking earnestly, and evidently labouring under delusion. He is now constant in his demands for an impossible document, has lost all his tremor, shows excellent co-ordinating power, and may possibly recover, for it is evident that a very different part of his brain is now affected than when he was admitted; if the process is rapid the structure may soon recover; but at the same time he might become suicidal or dangerous, for his moral state is very different from what it was when I first knew him, and has changed *pari passu* with the ideational.¹

Suicide in health.—The phenomena of suicide, coming as they do most frequently under the notice of prison and asylum physicians, bear out in a most striking degree the effects of these migratory brain-lesions. It is curious to notice how a person attempting suicide and falling into the hands of the police is generally treated as a criminal, whilst if the same person were to commit a similar act at home or in the workhouse, he would be brought

¹ Since writing the above this man has become exceedingly violent and homicidal.

under medical notice and sent to a lunatic asylum. Yet in both instances there is a brain-lesion, sometimes the first symptom of which is suicide, at another but the issue of a long-continued but varying course of symptoms. I have been struck, on questioning those who have attempted suicide, with the rapidity with which, previous to the act, consciousness has been obscured. Take the case of a drunken man ; he will remember the act of getting drunk to a certain point, but of his jumping over the bridge or cutting his throat he remembers nothing, because the rapid course of the disease, alcoholic poisoning, produced an acute confusion of his consciousness that left him a victim to any object that aroused the uncontrolled objective senses. When the disease subsides, either by the shock of immersion or by the loss of blood, which relieves his congested centres, he recovers from his acute attack, and wonders at what he attempted. In the same way, from blood-poisoning or long-continued grief, anything which is a source of brain-irritation, a brain-lesion is set up which after a time leads to suicide ; but though the case here may be longer in duration, it is really none the less acute than in the former instance, for the disease has been invading part after part of the brain-tissue until at last it has reached the part which presides over the instinct of self-preservation, and the act that in the one was a certain consequence of the affection of a particular area, is none the less so because in the other the route taken to the cruel spot was more circuitous in direction and longer in its rate of travel. Although, scientifically speaking, the two persons were suffering from acute disease, one would have a great chance of being sent to prison for an offence against the law, the other would be sent to an asylum as being insane, the element of time saving him from the stamp of a malefactor. There is no reason why a person should not retain the suicidal impulse as long as particular cerebral irritation lasts ; and accordingly such persons, according to the "time" theory, should be classed as chronic ; yet there are few physicians who would care to dispense with the usual precautions, because they know that notwithstanding the long time the condition has remained they feel bound to treat it as an acute case. And accordingly they find in most instances that a change does take place, that the suicidal manifestations disappear, and that recovery or dementia ensues. Again, numbers of persons come under treatment with suicidal history, and yet we are able to a certain extent to trust them and dispense with stringent regulations, because we see that though they do not quite regain their mental balance, still the disease is not stationary, that it is like a threatening thunder-cloud, obscuring for a time what it passes over, but going on and leaving no trace behind.

In making post-mortem examinations on persons who have died insane, it is of great importance to separate if possible new from old lesions ; and the difficulty of doing this is at times very great, because we cannot say with certainty the length of time required to produce a lesion of a definite nature. The histories given with patients are as a rule so meagre, and facts are so persistently withheld or perverted, that our data are insufficient. And yet the importance of this estimation of time may be paramount. For instance, it might be necessary to give an opinion as to the length of time certain lesions present have existed in a person whose will was disputed on the ground of insanity. If it could be shown that at the time the will was made the lesion could not have existed, the advantage would be inestimable ; and if the succession of lesions corresponding to symptoms could be vouched for, safe conclusions would be arrived at. So long as the friends of people are unable or unwilling to estimate the signs of insanity, we shall have to listen to stories of sudden attacks of impulse leading to suicidal or homicidal acts, and if the results of the trial are disastrous to the accused, we shall find the plea of insanity set up in defence ; but the same people would repudiate the suggestion that the proper time for bringing in the plea of insanity was before the commission of the crime. They have not recognised that their friend has been for a long time in a state of progressive disease, or, as he has seemed only "simple" or "harmless," they have, for fear of having the public stamp of insanity placed on the family (though they privately harbour the reality), allowed him to go about, to become secretly involved, to enter into liaisons which may produce a tainted offspring, and to commit numberless breaches against public decency or safety, which breaches they call eccentricities, until at last the progress of the disease deprives him of his self-control and he commits a heinous crime. Then they say he became suddenly insane, when in fact his was an instance of long-continued insanity, chronic as to time, acute in its progress over different tracts, and doubtless capable of explanation on post-mortem examination.

The public are partly to blame for the results of this neglect to provide for the early symptoms of insanity. So long as the persons are not dangerous or troublesome, they, as the phrase goes, "guard with a jealous eye" the incarceration or restraint of such persons, taunt asylum physicians with their wrongful detention, and indulge in the claptrap that appeals to the gallery in some so-called dramas of the modern type ; but when, in consequence of this misguided sympathy, a terrible catastrophe occurs, they refuse to recognise the disease because they do not believe in sudden destructive manifestations, the truth being that they

are not able to estimate the clinical fact that any person who has once shown signs of insanity cannot further be trusted. If he is now quiet and harmless he may become the reverse ; and, on the other hand, they hesitate to take back the man who has been violent or suicidal, though he is just as likely to become harmless as to remain in his destructive state.

CASE OF
RUPTURE OF LIVER AND KIDNEY.

BY
WALTER H. JESSOP.

The following case was under Mr. Willett in Harley Ward, and for many of the notes I am indebted to the dresser, Mr. Muriel :—

Philip M., a porter, aged 19. On the 8th March, 1881, fell with and in a lift a distance of about 25 feet, and was found insensible, hanging through the aperture at the top of the cage, apparently having been thrown there by the rebound of the lift on reaching the ground.

He was brought to the Hospital at 6.30 P.M., about an hour after the accident, in a semi-conscious state.

On examination, no bones were found fractured ; slight bruising over left zygoma and upper eyelid ; both hands grazed ; general anaemic appearance ; pupils equal, responsive to light ; pulse, small, regular, 84 ; skin cool, inclined to be clammy ; temperature 96° ; respirations, deep, easy, 20 ; breathing only thoracic ; abdominal walls tense ; pain and tenderness over most of abdomen, chiefly over left hypochondriac and epigastric regions ; nothing abnormal discovered by palpation or percussion ; liver dulness normal ; bowels open yesterday ; bladder not distended ; passed urine at 1 P.M. ; decubitus right ; pain on lying on back ; no paralysis of limbs or face.

11 P.M.—Looks heavy and very pallid ; quite conscious ; pulse very small, intermittent, irregular, 110 ; skin cool ; temperature 96.2° ; respiration, shallow, regular, thoracic, 30. Has not been sleeping ; very thirsty ; taken ice to suck ; vomited three times ; vomit chiefly water, and of slight green colour ; no haematemesis. Complains of pain in head and nausea. Pain over abdomen not so great, and more diffused ; decubitus right. Not passed urine since admission.

March 9, 12.30 A.M.—Very livid ; expression anxious ; pulse very small, irregular, 128 ; respiration, shallow, 26 ; skin cold and dry ; temperature 96.2°. Has vomited several times. More hypogastric tenderness than before. Not passed urine ; no haemorrhage from urethra. Thomson's catheter easily introduced into bladder, and 5 oz. of fairly clear urine drawn off, and then 3 oz. of bright red colour, chiefly blood ; no clots ; sp. gr. of whole quantity 1027 ; albumen nearly a half. Bowels not open. Ordered tinct. opii ℥x. now and at 6 A.M. ; brandy ʒij. Left catheter in bladder, with tubing fixed to it, reaching into a receiver of carbolic lotion.

1.30 A.M.—In same state. Temperature 99.2° ; pulse, scarcely to be felt at wrist, 132. Not in so much pain in belly. No urine has come away by catheter. Has vomited brandy and opium. Ordered tinct. opii ℥x., and brandy ʒss. twenty minutes afterwards, and to be repeated.

7 A.M.—No pain ; hypogastrium less tender. Has not slept, though not restless. Temperature, 98.2°. Pulse, scarcely to be counted, 96. Has passed no urine ; catheter taken out and again passed, when about ʒi. of urine passed. Did not vomit brandy.

11 A.M.—About the same. Pulse, not perceptible in left radial, very small and thready in right, 144. Respiration, thoracic, regular, 36. Skin cold. Temperature, 98.6°. Decubitus right. Complains of no pain, the abdominal tenderness general. Has not slept. Abdomen, dulness on percussion over whole of right side and flank to middle line. Has not passed urine. Examined per rectum ; no fluctuating swelling behind prostate ; slight pain on pressure behind prostate. Vomited milk and soda-water.

2 P.M.—Mr. Willett passed full-sized silver catheter easily, and drew off about ʒij. of somewhat smoky urine, which came in jerks corresponding to expirations. Ordered tinct. opii ℥x. every three hours.

10 P.M.—Dozing ; complains of hypogastric pain and tenderness. Has passed urine twice ; first time 3 oz., second about 1½ oz. sp. gr. 1025, acid, albumen a half, no blood. Bowels not open. While lying on right side dulness nearly as far as umbilicus. Taken milk and soda-water without vomiting.

March 10.—Slept fairly, and taken nourishment without vomiting. Passed 17 oz. of urine in 12 hours ; sp. gr. 1022, trace of albumen.

8.30 P.M.—Looks better ; pupils contracted ; skin hot and dry. Temperature, 100°. Decubitus more dorsal. Abdomen dull to right of umbilicus. Some dulness above pubes. Pulse,

132, regular, quick. Respiration only thoracic, regular, 18. Has not vomited. Tinct. opii. ℥x. every 6 hours.

March 11.—Feels better. Pupils normal size. Pulse, 120, intermittent, fuller. Skin cool. Temperature, 96°. Abdomen tense, dulness over right side, diffused pain over belly. Bowels not open; passed 2 pints of urine in 12 hours. Not vomited; takes food well.

6.30 P.M.—Looks flushed. Skin hot, dry. Temperature, 99.6°. Pulse, 132, full. Respiration, 24. Has vomited twice since 5 P.M.; vomit watery, and tinged with green. Abdomen more tense and tympanitic. Ordered tinct. opii ℥x. every 4 hours.

12 P.M.—Has not vomited again; taken nothing but ice to suck. Pupils contracted. Pain and tenderness over hypogastrium and right side. Passing plenty of urine. Temperature, 100.6°.

March 12.—Slept fairly. Pulse, 120, full, regular. Respiration, thoracic, 18. Urine, sp. gr. 1022, acid, trace of albumen; 3½ pints in 24 hours. No vomiting. Abdomen not so tense, more tympanitic. Taken food well. Tinct. opii ℥x. every six hours.

March 13.—Rather flushed and sallow. Temperature normal. No pain in belly, only a feeling of tenseness. Bowels open, motions natural and constipated.

March 14.—Slept badly; troubled with flatus. Urine, 4 pints in 24 hours.

March 15.—Heavy-looking; yellowish tinge over face and neck. Conjunctivæ yellowish. Bowels open three times. Slight heavy pain in stomach.

10 P.M.—Pain in right side. Skin hot. Temperature, 101.4°. Abdomen tumid, tympanitic. Bowels open five times to-day, motions clay-coloured. Urine, sp. gr. 1026, acid, blood, no bile, albumen a half.

March 16.—Slept fairly. Conjunctivæ jaundiced. Skin yellowish, hot, and dry. Temperature, 100.6°. Abdomen distended; dulness in both flanks; distinct wave from side to side; no pain. Bowels open twice. Urine, 2 pints in 12 hours.

March 17, 11 P.M.—Has vomited several times this evening, vomit watery, bright green colour. Countenance anxious. Skin hot. Temperature, 102.6°. Pulse, regular, weaker, 144. Abdomen tenser, duller on right side, pain and tenderness all over. Urine, 2½ pints in 24 hours, contains blood. Ordered tinct. opii every 6 hours, and champagne.

March 18.—No sleep; much worse; eyes sunken; jaundiced.

Tongue dry, brown fur. Pulse scarcely to be felt at wrist. Respirations, thoracic, 32. Abdomen tense, tender. Vomiting continually, at first green from bile, but now of coffee-grounds character. Has passed half pint of urine since last night, acid, sp. gr. 1026, bloody. Albumen, a half. Bowels open once, very loose, motions whitish colour with green flakes. Rapidly got worse, and died at 12.30 P.M.

Post-mortem examination thirty hours after death.—Body well nourished. On opening abdomen, the peritoneal cavity was found filled with blood, most of which was recent, the quantity being about four pints. Intestines were in many places adherent, and covered with recent lymph. Liver weighed 63 oz. The superior and posterior surface of right lobe was considerably bruised and lacerated, and a fissure extended 3 in. from posterior border of right lobe upwards; anterior margin of left lobe considerably lacerated, and a portion, about size of Brazil-nut, had been completely detached, and was found in the pelvis firmly adherent to the lower end of ileum. Right kidney weighed 6 oz.; was ruptured in two places, one on anterior surface at junction of upper and middle thirds, and the other on the posterior surface about same place, extending up to the suprarenal capsule, and almost meeting the first. There was haemorrhage beneath the capsule of the kidney, apparently of some days' existence. Left kidney was large, and of white colour. Bladder, heart, and other viscera quite healthy.

Remarks.—This case is interesting from the problems set up in diagnosis during the first days after admission, and from the extensive injuries received by the liver and right kidney not occasioning death before the ninth day.

On admission the chief signs were those of collapse and probable internal haemorrhage; the thoracic breathing, pain, tenderness, and vomiting pointing to abdominal mischief. Hypogastric pain, absence of bladder dulness, inability to pass urine, and withdrawal by catheter of 5 oz. of tolerably clear urine and then 3 oz. of nearly pure blood, pointed to rupture of bladder. Against this, however, was the fact of passing urine a few hours before the accident, and the absence of increased desire to micturate. During the next twelve hours no urine was passed voluntarily, and only a few drachms, chiefly blood, were drawn off by a catheter, in jerks and synchronous with expiration. However, in the next seven hours he passed, voluntarily and without pain, 4½ oz. of urine free from blood, and in forty hours from the time of injury there was hypersecretion of urine unaccompanied by blood. The presence of blood and suppression of urine must then have been due either to rupture of the internal coats of the bladder, together with shock due to abdominal injury; to rupture of the bladder, with the intestines

subsequently closing the rent, or to rupture of the kidney, the latter the more probable.

With regard to the kidney mischief; there was no special pain or tenderness in the loins, along the course of the ureter, or referred to the testicle, but simply hypogastric and post-prostatic. The urine after the first period of suppression became clear and free from blood.

The symptoms up to the twentieth hour coincided with those of extensive rupture of the bladder, involving considerable intra-peritoneal haemorrhage; and a case like this would go far to discountenance too early operative proceedings for apparent rupture of the bladder.

On the signs of vesical mischief clearing up, the free fluid on right side of abdomen, which existed from the beginning and gradually increased, was clearly recognised as blood.

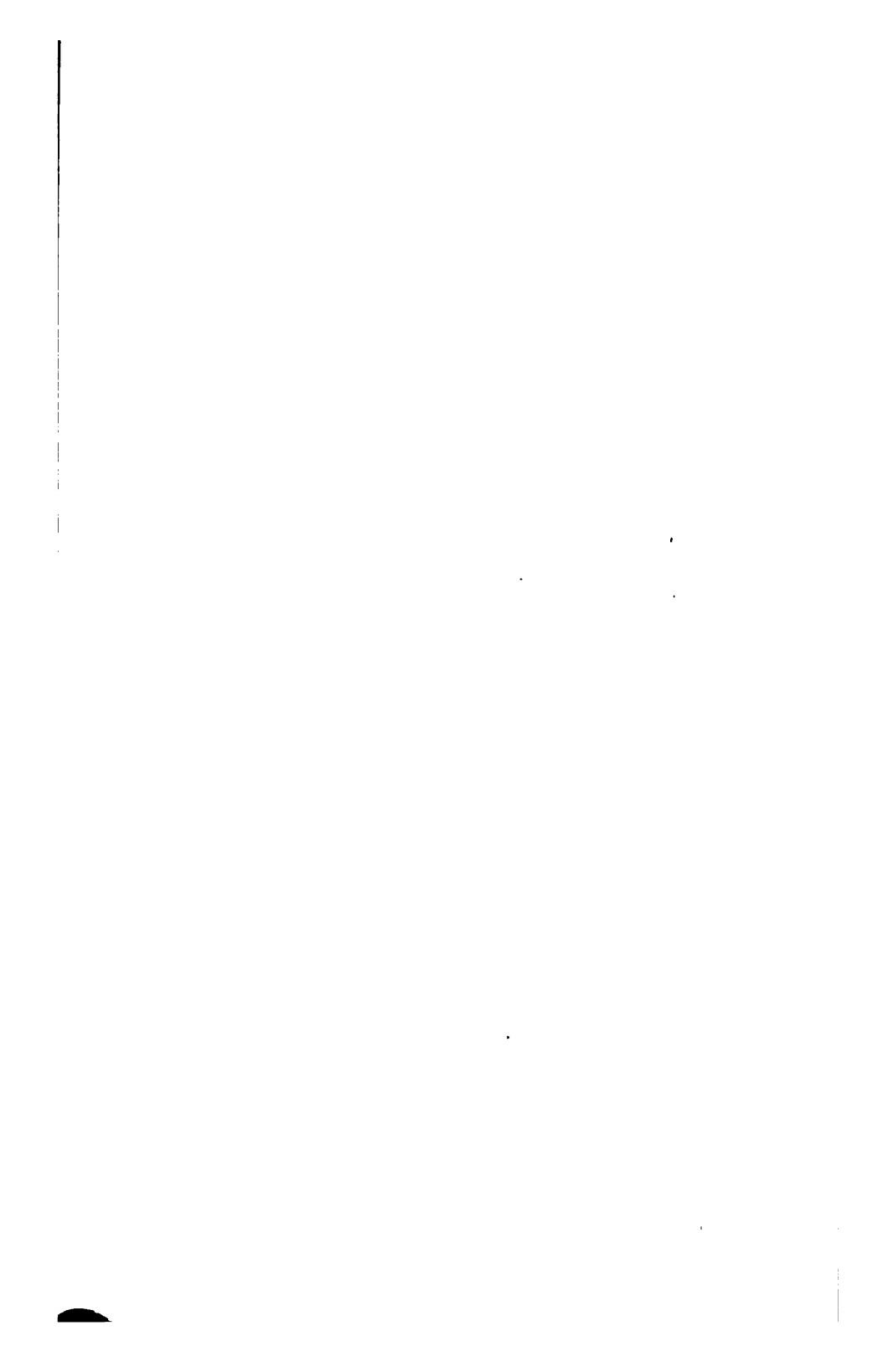
As to the source of this blood; its large quantity, the right decubitus of the patient, the constant vomiting, and bilious character of the vomit, pointed to its being probably from the liver.

This diagnosis became certain about the fifth day, when the vomiting, which had for some time ceased, became markedly bilious, coupled with pain in right side and jaundice.

The great increase in fluid during the last two days pointed probably to secondary haemorrhage, which was followed by acute peritonitis, and death in twelve hours from severer symptoms.

The post-mortem cleared up the diagnosis as to rupture of the liver, there being also rupture of the right kidney. The extensive liver rupture must have given rise immediately to copious haemorrhage, accounting for his bloodless condition on admission, and the detachment of the piece of liver must have taken place at the same time. The subsequent peritonitis set up by the detached portion, which resulted in its firm adhesion to a piece of ileum, would give rise to the hypogastric pain and tenderness. The presence of a large quantity of fresh blood in the peritoneal cavity showed the existence of secondary haemorrhage induced by vomiting, and there were also signs of quite recent and general peritonitis.

The treatment throughout was keeping him slightly under opium and completely at rest.



ON
LEAD-IMPREGNATION IN RELATION
TO GOUT.

BY

DYCE DUCKWORTH, M.D.

In this contribution I shall embody my experience of the influence exercised by lead in cases of gout. The connection between lead-poisoning and gout is well established, although the nature of that connection is still but little understood. It is not too much to assert at once that the facts adduced on this subject by Dr. Garrod, first in 1854, and subsequently added to by him, have been fully confirmed by other observers, and the merit of fully setting forth the connection between the two disorders rests with him, although previous indications of it were made known more than a century ago.¹ Dr. Garrod states that "at least one in four of the gouty patients who had come under his care in hospital had at some period of their lives been affected with lead, and for the most part followed the occupation of plumbers or painters."² In 1870³ he stated that 33 per cent. of people who suffered from gout had been poisoned with lead. These facts are very remarkable, and are probably insufficiently realised. Such an experience is not readily procurable, and London practice affords

¹ Dr. William Musgrave is believed to be the first writer who directed attention to *arthritis* in connection with *colic*. He did not, however, attribute the latter to the influence of lead, but thought that cider-drinking induced it. A perusal of his chapter *De Arthritide ex Colic* in his *Dissertatio de Arthritide Symptomatica* makes this clear. This was published in Exeter in 1703. It was left for the acumen of Sir George Baker to discover, sixty-three years later, that lead-imregnation of cider was the real cause of Devonshire colic, a fact which he disclosed in an essay read in the College of Physicians on June 29, 1767.

² Clin. Lect. on Lead-Poisoning, Lancet, 1870, vol. ii. p. 781, and Reynolds' Syst. of Med., vol. i. p. 841, Lancet, 1872, vol. i. p. 1.

³ Gout and Rheumatic Gout, 3d edit., p. 237.

perhaps the only field in which such a study is possible on a similar scale.

The idea still prevails too largely that gout is a malady of the upper or well-to-do classes of society. More recent advances, so-called, in knowledge, have led to the belief that "poor man's gout" is a misnomer from the strict pathological stand-point, and should properly be termed rheumatoid or osteoid arthritis. I am very certain that such is not always the case, and I have no hesitation in affirming that true gout, in all its forms, is common enough in London amongst the lower and the working classes.

A distinction is to be made between "poor man's gout" and what may be termed "poor gout." Poor men may acquire gout by alcoholic intemperance, the latter, doubtless, often aggravating their poverty in several ways; but poor and rich men alike may become the victims of "poor gout," through no faults of intemperance of their own, but through the inheritance either of feeble constitutions or of true gouty tendency.

The connection between lead-influence and gout, whatever it may be, is naturally to be studied almost exclusively amongst the artisan classes, and therefore in hospital practice. Lead-impregnation is now, happily, very rare amongst the upper classes, owing to proper care in the storage and supply of potable water. Yet even here this influence should never be lost sight of in any case. Amongst the artisan population of London it is common to meet with cases of lead-poisoning, but the worst cases are seen in the workers in lead-mills. These persons are generally very poor, and only resort to this occupation when other means fail them. I find that they are often Irish, and that many women are amongst them, and it is not without importance to note these facts.

My own experience is taken from 136 cases of unequivocal gout in both sexes, which have been under my care during the last three years at the Hospital. Twenty-five of these patients, or 18 per cent., presented signs of lead-impregnation, and followed the occupation of painters, plumbers, compositors, or workers in lead-mills. They were all males. The age of the youngest was 25, of the oldest 62, the mean being about 43 years. In seventeen of the cases there were either present, or there were histories of, blue line, colic, and wrist-drop. In at least one-half of these patients there was history of intemperance, commonly in both malt liquors and spirits. In at least one-half the urine was slightly albuminous, of low specific gravity, and there were histories of cramps in the legs, and of nocturnal micturitions—all symptoms of chronic interstitial nephritis.

These cases are taken from my notebooks, and under the pressure of out-patient work, facts of lesser importance have been

sometimes omitted. They were recorded for no special object, and simply to illustrate the varied phenomena of gouty disease. The percentage of saturnine gout is large and remarkable, but it is considerably under that recorded by Dr. Garrod, *viz.*, 18 against 33 per cent. of all cases of true gout.

Dr. Garrod sought to ascertain how far his views were borne out by experience obtained in other places, and he quotes the evidence of Sir Robert Christison, which showed that both lead-poisoning and gout were practically unknown in the cliniques of the Edinburgh Infirmary.

I have endeavoured to gather some new facts in reference to this matter, and now communicate the experiences of several eminently competent observers in various cities and manufacturing centres.

In Edinburgh, Professor Grainger Stewart finds that the same immunity both from lead-poisoning and from gout still prevails, and he thus confirms Sir Robert Christison's evidence in reply to Dr. Garrod's inquiries in 1859.

He remarks, "Although I see a great deal of gout in my consulting-room here, I do not find it increasing among the Infirmary patients—indeed, I scarcely ever get a case. I may, however, say that during the years I have been in practice, I have gradually gleaned evidence enough to satisfy me of the correctness of the view which was believed in by Warburton Begbie and others here."

It is interesting to point out that the views of Sir Robert Christison expressed to Dr. Garrod in 1859 did not meet the approval of the late Dr. Warburton Begbie, for, three years subsequently, he denied the great infrequency both of lead-poisoning and of gout in the same sphere of observation—to wit, the Edinburgh Royal Infirmary. He published the particulars of two cases fully illustrating the connection, and declared that he had met with about twelve of the kind in the course of seven years. In both of his published cases, there was history of intemperance both in spirits and in malt liquors.¹ He believed that lead-impregnation together with the employment of fermented liquors gave strong predisposition to gout.

Professor Gairdner, of Glasgow, writes that his experience is entirely negative. He says, "I never saw a case of lead-poisoning in association with gout having its *genesis* in Scotland. I will not say that my experience in this matter is to be taken as absolute; only as lead-poisoning and gout are *each* rather rare in the working-classes here, the combination is, of course, still more uncommon. I have no doubt of the London facts, also little doubt that beer is a large factor."

¹ *Edin. Med. Jour.*, August 1862, p. 125.

Supposing that lead-impregnation must be common at Newcastle-on-Tyne, I addressed my friend Dr. Drummond, who is physician and pathologist to the Infirmary there, with reference to any gouty prevalence. He replied as follows :—"I think I may state very positively that in Newcastle and district, where we meet with a very large number of cases of lead-impregnation, we never see gout associated with that condition. Such is my own experience, and I have given a great deal of attention to lead-poisoning, having ample material in the Infirmary to draw from. It is also the experience of Dr. Embleton, our consulting physician, and for a long time medical officer in charge of nearly all the lead-factories in the neighbourhood. We see lead-kidney (granular), lead-encephalopathy, fits, optic neuritis, optic atrophy, lead-palsies of upper and lower extremities, lead-colic, and, lastly, lead-arthritis ; but I have never seen anything like gout in a lead case. The arthritis has always appeared to me to be more of a myalgia than a joint-affection proper. Some of the cases are allied to subacute rheumatism without effusion into the joints, but unlike gout. We do not often meet with gout in Newcastle, and it is very rare amongst the lower orders." As to the liquors consumed by the labouring classes, Dr. Drummond states that a great deal of whisky is drunk as well as beer. "The chemical labourers drink whisky to 'kill the gases,' as they say, but the pitmen drink both ale and whisky. On the whole, I may say that 'halves of whisky' is the favourite drink."

In Birmingham, Dr. Balthazar Foster informs me lead-poisoning is not common, and that very little gout is seen amongst the lower orders.

Dr. Wynne Foot, senior physician to the Meath Hospital in Dublin, states that he is "quite familiar with articular symptoms in painters, plumbers, and others exposed to lead-intoxication." He terms the affection plumbic arthritis, and has come to regard it as a form of spinal arthropathy due to the poisoning of the nerve-centres. He has not had any post-mortem examination of these cases.

Professor Cuming, of Belfast, reports that his experience is decidedly against the connection, for which he has often looked, and always in vain.

The evidence here amounts to this, that lead is a factor in the production of arthritis, the nature of which is not exactly known. It may be presumed that no manifest gouty characters prevailed, or they would certainly have been noted. Gout is very rare in Dublin, although it has been stated to have become more frequent since the lower orders have taken to drinking porter instead of whisky.

In Liverpool, both gout and lead-poisoning appear to be very rarely met with. I have before me the experience of three of the physicians to the largest hospitals in the city, Dr. Cameron, Dr. Waters, and Dr. Davidson, and it furnishes no facts in support of the question.

With respect to Paris, we find the evidence of M. Charcot in 1868 to the effect that : "Il existe parmi les *saturnins* quelques goutteux, chez qui l'époisonnement par le plomb est la seule cause qu'on puisse invoquer." He believes that gout may be developed under this influence alone, but that such cases are rare. He has published one example illustrating this. Dr. Lancéreaux has contributed quite recently some important facts from his experience at La Pitié. He communicated to the International Medical Congress a series of twenty-four cases of saturnine nephritis, and from this list I find that in over one-third of the cases there was distinct history of gout, or of uratic infiltration of joints. I think, too, that had the joints been examined in all his cases a still larger proportion of gouty evidence would have been forthcoming. In respect of the dietetic habits of these patients, Dr. Lancéreaux informs me that many of them had drunk brandy and absinthe to excess, and were also wine-drinkers. In no case was there history of excessive beer-drinking. These cases plainly illustrate the combination of lead-impregnation and alcoholic excess as factors in the production of gout in a community and country where that malady but seldom occurs. Dr. Lancéreaux agrees with those observers who believe that the lesions of gout and, so-called, saturnine gout are identical in all the organs of the body, save that in pure gout there may perhaps be present more uratic deposit; but he does not believe that intemperate habits count for much in the production of urate of soda and of gout, for the reason that his hospital practice yearly furnishes him with hundreds of cases of alcoholic excess amongst which gout is most rarely seen, and when met with, is regarded merely as a coincidence.

It is to be noted that the kidneys were severely implicated in the majority of Dr. Lancéreaux's cases.

Dr. Pye-Smith, in a series of sixty-one cases of gout at Guy's Hospital, met with evidence of plumbism in only two instances. He does not find that plumbers and painters admit the common opinion that men in these trades drink more freely than others.¹ (My own observation in London would not permit me to grant this admission.) In these cases there was history of inherited gout or of intemperance.

¹ Analysis of Cases of Rheumatism and Gout, Guy's Hospital Reports, 1873.

It is important to note the influences of lead in cases of gout where no inherited taint is discoverable, and also where no intemperance in strong drinks has prevailed to determine gout. Charcot¹ reports one such case—Dr. Todd's² was probably of this nature—and Dr. Wilks³ has recorded three instances. In the great majority of cases there is found history either of predisposition to gout, or of distinct intemperance in malt liquors, or, indeed, of both causes; but none the less is the influence of saturnism very decided and noteworthy.

Dr. Begbie's⁴ cases occurred in intemperate men, and the late Dr. Falconer⁵ reported another. Dr. Fagge⁶ also recorded one. M. Bricheteau⁷ recorded a case in a painter whose father was also a painter; and amongst my own cases are three where the fathers were either painters or composers. In these instances we must regard it as almost certain that predisposition to arthriticisim existed, or was directly inherited. Great difficulty must always be met with in eliciting ancestral history of gout, especially in the cases of hospital patients; and another difficulty arises from the impossibility of finding certain evidence of lead-taint in some instances, since such may really be present without the manifestations of colic, wrist-drop, or even of the Burtonian blue line.⁸ Dr. Lancéreaux's cases were all in intemperate men.

London experience certainly confirms Dr. Garrod's opinion that persons exposed to lead-influence are prone to develop gout, and that persons of gouty predisposition are specially liable to suffer quickly and severely from plumbism. It is remarkable that this experience should not be universal even in England. It is, however, very noteworthy that in many cases where true gout is not developed in connection with lead-impregnation, rheumatoid pains and arthritis are apt to supervene, and this fact appears to me to justify very fully the view held by Dr. Wynne Foot, Dr. Lancéreaux, and perhaps others, that the arthritis owns a neurotic origin. And this theory is specially acceptable to me, inasmuch as I am strongly convinced of the neurotic element in gouty

¹ *Gazette Hebdom.*, 1863, No. xxvii. p. 433.

² *On Gout and Rheumatism*, 1843, p. 44.

³ *Guy's Hosp. Reports*, 1870, p. 40.

⁴ *Loc. cit.*

⁵ *Brit. Med. Journal*, 1861, p. 464.

⁶ *Med. Chir. Trans.*, vol. lxiv. p. 221.

⁷ *Gazette des Hôpitaux*, 1870, No. xxvi.

⁸ My observations entirely confirm Dr. Hilton Fagge's respecting the blue (more correctly black) line. *Vide Med. Chir. Trans.*, vol. lix. p. 327. Dr. Garrod has claimed the credit of its discovery for Tanquerel des Planches, who published his famous "*Traité des Maladies de Plomb, ou Saturnines*" in 1839. Dr. Burton's communication was read to the Royal Medico-Chirurgical Society in January 1840, but he stated that he first discovered the blue line in 1834, and waited to confirm his observations. He also described articular pains in lead-impregnation "resembling rheumatism."

disease in general, and believe it to be a neuro-humoral disorder. Dr. Lancéreaux believes the pathogeny of ordinary and of saturnine gout to be alike, and holds that they have their common origin in "a primordial trouble of nutritive innervation." He remarks, "Gout is certainly the result of such a disorder, and no one can doubt the obvious action of lead upon the nervous system." Mr. Hutchinson declares for the neurotic origin of rheumatism, but denies this in gout, which he believes to be purely humoral. I think many facts bear strongly in the direction of a primary neurotic element for each affection. To hold this opinion is by no means to find a cloak for our ignorance, or to stay further inquiry; on the contrary, I hold that such a view tends much to enlarge our conceptions of the morbid processes in each malady.

In connection with arthritic changes induced by lead, attention may be directed to a series of cases which were very carefully described in Paris in 1868 by M. Gubler,¹ M. Nicaise,² and M. Bouchard.³ A series of fourteen cases illustrated certain swellings which appeared in the extensor tendons and their sheaths in connection with muscular atrophy and wrist-drop. Sometimes the carpal and metacarpal bones were affected by bony outgrowths, and in several instances arthritis occurred in the metacarpophalangeal and phalangeal joints. Gout and uratic deposits appear to have been carefully excluded, save perhaps in one case. The extensor tendons and tarsal bones were also affected in some cases. These swellings, to which M. Gubler gave the name of "dorsal tumour of the hands," were found to occur commonly within two months of the onset of the paralysis. Sometimes they were formed within a few days, and in others not till six months had elapsed. After death the tendons and their sheaths were found to be nodular and the synovia opaque, and bony outgrowths had occurred, but no uratic incrustation. These tumours entirely subsided in several of the cases, and a good deal of inflammatory disturbance and pain were met with at first. M. Nicaise in his papers showed that similar cases had been noted nearly three centuries ago by Plater, and by De Haen in 1745, also by Pariset in 1813, and by Tanquerel des Planches in 1839. M. Gubler recognised the same affection in one case of hemiplegia due to cerebral haemorrhage, and in 1869 M. Tournié⁴ contributed three cases, the tumours always occurring in the hand of the paralysed side.

M. Gubler regarded these changes as due to enfeeblement of vaso-motor nerves, and such cases must be considered together with those which are distinctly gouty in their nature, all of them

¹ L'Union Méd., 1868.² Gaz. Hebdom., 1868.³ Gazette Méd., 1868.⁴ L'Union Méd., 1869.

plainly illustrating neuro-trophic derangements. Erb¹ declares his belief that in lead-poisoning there is a primary lesion of the nervous system, mainly spinal, leading to motor-trophic disturbances, and he quotes observations by Remak showing that circumscribed alterations are met with in the anterior cornua of the chord.²

The effect of plumbism in inducing arthritis other than gouty, and articular pains, as well as the peculiar swellings in the tendons of the extremities and their sheaths, must be considered in relation to the production of true gout in many cases. These may be held to be of neuropathic nature, and akin to other forms of so-called spinal arthropathy.

Lead-taint superadded to already existing arthritic diathesis, or coalescing with ordinary excitants of gout, appears to promote and intensify the evolution of gout.

It has been stated in objection to the theory of any connection between plumbism and gout that the cases should be more common than they are, and that women should present examples of it. But the cases illustrating the connection in males form a very remarkable percentage of all cases of true gout; and the fact that women are apparently exempt may admit of the explanation that they are seldom persistently exposed, as are men, to lead-impregnation. Women who suffer are commonly employed for short periods in lead-mills. They mostly take up the work in default of other and more wholesome employment, and leave it as soon as they can. Women, too, are less subject to gout during the period of generative activity than men, and they are certainly more temperate in liquors. Amongst my cases, most of the women affected with lead were Irish, and very destitute. Now, it may be affirmed that in such instances there is absence, for the most part, of both the factors of hereditary tendency to gout, and of intemperate habits. I see many cases of gout in Irishmen who have lived long in London, and who have almost certainly acquired the malady as the result of adoption of London habits of beer-drinking. Such men would probably have never become gouty in Ireland.

Women who acquire lead cachexia manifest all the lesions producible by the metal, save unequivocal gout. They suffer the cardio-vascular and the renal changes very markedly, but the special uric acid perturbations are not found.

The facts relating to lead-impregnation and chronic interstitial nephritis admit of no question in either sex. M. Lancéreaux draws a distinction between the kidneys of plumbism and those resulting from arterio-capillary fibrosis unconnected with satur-

¹ Disease of Peripheral Cerebro-Spinal Nerves, Ziemssen's Cyclop., vol. xi. p. 548.

² Vol. xiii. p. 715.

nine influence. In the latter, he finds the granulations coarser and more irregular, the arterioles more thickened, and the changes unequal in the two organs. Together with the granular kidneys associated with purely vascular change, he has observed, in a proportion of his cases, certain forms of arthritis quite distinct from gout, and more allied to osteo or rheumatoid arthritis, no uratic deposit being present.¹ The joints chiefly affected are the metacarpo-phalangeal of the thumb and the knees. Such cases have not, I believe, been hitherto differentiated in this country. Where the characters of saturnine nephritis prevail, M. Lancéreaux has, with one exception, found, when he has looked for it, the arthritic changes characteristic of gout—viz., uratic deposit in the structures of the joints.

In the large number of cases of lead-poisoning carefully recorded by Tanquerel des Planches, it is remarkable that there is no mention of gout.² The characters of lead arthralgia are minutely described, and in frequency it is accorded the second place as a symptom, colic being nearly twice as often met with. Arthralgia was found to be most frequent during the summer season, and to occur more commonly in the fourth decade. The joints of the lower limbs suffered chiefly, while the upper extremities were affected by paralysis. It is specially mentioned that there were never observed heat, redness, or swelling, and that pressure relieved the pain.

The special susceptibility of the gouty to be affected with lead, as asserted by Dr. Garrod, appears to be unquestionable. In some cases lead has induced the first obvious symptoms of gout, having, as it were, precipitated the specific morbid processes of gouty inflammation, and forming a sort of touchstone for this taint.³

A consideration of the physiological action of lead upon the body shows that both the nervous and circulatory systems are profoundly affected. Lead has been found in most of the tissues after death, especially in the brain⁴ and in the intestines.⁵ Gaffky⁶ believes that some change occurs in the vaso-motor nerves of the abdomen, especially in the sympathetic fibres of the

¹ Communication, with specimens of affected bones, to the Section of Medicine, International Medical Congress, London, August 1881.

² Intemperance has, however, increased greatly amongst the lower orders in Paris and the large French towns during the last forty years.

³ My colleague, Dr. Lauder Brunton, kindly permits me to report the following case which he observed a few years ago amongst the casualty patients:—A man, aged 25-30, came for chronic diarrhoea. He was treated with pil. plumbi c. opio. In less than ten days he returned with gout in one of his joints. He had never had a previous attack of gout.

⁴ Troisier and Lagrange, *Gaz. Méd.*, 1874, 62.

⁵ Fagge and Stevenson, loc. cit., 1880.

⁶ Ueber den ursächlichen Zusammenhang zwischen chronischer Blei-intoxication und Nierenaffectionen, Berlin, 1873.

splanchnic, by reason of which the renal mischief is induced. Kussmaul and Maier¹ record a careful post-mortem examination of a case of chronic lead-poisoning, in which, amongst many other changes, they found proliferation and sclerosis of the connective tissue septa of the small ganglia of the sympathetic, especially the coeliac and cervical. These ganglia were hard, and the nerve-cells diminished. The smaller arteries were narrowed, and periarterial thickening was widely spread. It is not easy to follow the exact sequence or relation of these changes, but it is known that under the influence of lead the action of the heart becomes slow, and that the arterial tension is raised.² It is also now well ascertained that a persistent condition of high arterial pressure is in itself a certain source of cardiac hypertrophy and arterial thickening,³ and it may well be that much of the mischief wrought by lead-impregnation is set up in this fashion, the particular form of kidney affection met with in this cachexia being associated with it. The presence of retained matters, such as uric acid, in the blood is certainly often associated with a condition of arterio-capillary fibrosis, and this impure blood has been supposed to meet with resistance in the smaller vessels, and to provoke higher arterial tension in consequence. It is, however, conceivable that this chain of events may result from injury primarily inflicted upon the sympathetic system of nerves by the contaminated blood.

Dr. Garrod has demonstrated that lead distinctly diminishes the secreting powers of the kidneys for uric acid,⁴ and Charcot⁵ likens this inhibitory action of the metal to paralysis of the kidney. The uric acid is consequently retained in the body. Due regard being had to these facts, it becomes easy to see a very close relation between lead-impregnation and the frequent occurrence of gouty manifestations. But it is not at once obvious why gout should not be more frequent in lead-cachexia than it really is. One or more factors in the causation are wanting. Dr. Pye-Smith⁶ has never met with gout from plumbism without heredi-

¹ Deutch. Archiv., ix. 233.

² The best and most recent research on lead-poisoning is that of Erich Harnack, published in the "Archiv für experimentelle Pathologie und Pharmakologie," IXter Band, Leipzig, 1878, p. 152. His experiments go to support the view that the joint affections, and the nervous symptoms generally, are due to irritation of different centres, those in the medulla oblongata and the brain usually supervening latest.

Naturally we cannot look for much evidence as to the relation of lead-impregnation to gout from any experiments made in the physiological laboratory; such is only to be obtained from clinical studies. It may, however, here be noted that recent clinical researches point to the medulla oblongata as containing the probable trophic centre for the joints.

³ As demonstrated by Dr. Mahomed and other observers.

⁴ On Gout, p. 240.

⁵ Leçons sur les Maladies des Vieillards, &c., 1868, p. 124.

⁶ Op. cit.

tary predisposition or intemperance, and enough has been already shown to justify this assertion. We may explain the fact that gout is not found to be associated with lead-impregnation to any noteworthy extent in the North of England, in Ireland, and in Scotland, by a consideration of the conditions of heredity and of the drinking habits of the people in these various countries. There is, and there has been for centuries, more gout in the English metropolis, and amongst the beer-drinking inhabitants of the southern counties of England, than there is or has been amongst the populations in the North, in Ireland, and in Scotland, where spirits are consumed; and, therefore, it is only to be expected that the Southerners should yield the largest return of saturnine gout. On the other hand, beer-drinking is not alone in inducing gouty disease, for this will occur in persons who have been habitual spirit-drinkers only, and also in those who, as in the case of Parisian artisans, drink—immoderately, it is true—both brandy and inferior qualities of French wine. Hence we may believe that the two main exciting factors, inherited taint and intemperance, act often together, and sometimes singly, in producing saturnine gout.

The effect of lead in inducing gout must probably be attributed to the specific action of this poison upon the nerve-centres, this malign influence evoking such trophical changes in the entire vascular system, and in the kidneys, as are prone to be produced by the morbid condition we recognise as gout in its most comprehensive aspect. The lines of degeneration in the two affections, saturnism and gout, run, as it were, parallel, and seem only to be modified by individual habit and diathetic tendency.

Since writing this paper I have read an excellent contribution on the "Doctrine of Saturnine Gout" by Dr. Saundby of Birmingham.¹ After a careful review of thirteen cases, most of which have been considered in the foregoing pages, he arrives at the conclusion that the "doctrine of saturnine gout rests rather on authority than on observation." A larger review of all the facts must, I conceive, lead to the belief that the connection between lead impregnation and gout is both definite and unquestionable. The "authority" on which this doctrine rests is at least worthy of the highest respect, including as it does a large number of physicians who have been, and are, the keenest observers in the largest and best fields of study.

¹ Medical Times and Gazette, September 1881, pp. 385, 412. Dr. Saundby records one case in his practice of a male, aged 39, a file-cutter, with no hereditary gouty taint, who had gout three years previously, also colic and blue line on gums. He had been intemperate in beer-drinking. He presented all the signs of granular kidneys and cardio-vascular degeneration.



Since my paper was in type, I have received from Professor Frerichs of Berlin the subjoined analysis of 163 cases of lead-poisoning which he has been so good as to make for me. These cases were all observed in his clinic, and they have been examined with a view to discover whether any gouty association was noted in any of them.

It will be seen that the Berlin experience furnishes evidence of a negative character in relation to this matter, and goes, so far, to confirm the opinion expressed in my paper that the association of gout with lead-impregnation is most distinctly manifested where gout most commonly prevails amongst the population.

January 1882.

(*Translation.*)

PROFESSOR FRERICHS CLINIC.

Service of Dr. Ehrlich.—An analysis of 122 cases of chronic lead-poisoning, of which only four occurred in women, and of which only two died (one having jumped from a window), resulted in the following:—

I. By *Lead-colic* were attacked ninety-five men, three women. Of these, one had pulmonary phthisis, one croupous pneumonia, and one aortic insufficiency.

II. *Lead-palsy* attacked almost without exception the distribution of the radial nerve. It was noted in fourteen men and one woman.

a. The affection was bi-lateral in twelve cases, and was here complicated six times with lead colic and once with typhus.

b. The affection was unilateral three times, and always limited to the right arm. One of these cases had colic.

III. *Lead Arthralgia.* Six cases, three accompanied by colic.

IV. *Affections of the centres.*

a. Cephalalgia saturnina.

b. Encephalopathia saturnina colica.

c. Epilepsia saturnina colica.

d. Epilepsia saturnina c alucinationibus.

e. Epilepsia saturnina, amaurosis fugax, colica.

f. Paralysis saturnina c poliomyeliti anteriore chronicâ.

V. *Varia.*

a. Two cases of circular gastric ulcer, of which one suffered perforation and proved fatal.

β. One case of lead asthma (phthisis).

Palpable changes in the joints were not noted in any of these cases, nor were any cases of *nephritis vera* met with, although somewhat frequently, during the existence of the colic, albumen appeared temporarily in the urine.

Service of Dr. Litten.—In forty-one cases of lead-poisoning (colic, lead-palsy) were six in which joint-affection was present, generally appearing in a slight degree, and but temporarily. Only in two cases was much swelling of the joints of the feet.

However, in no instances were symptoms of true gout present.

Albumen was only found four times in these forty-one cases, and soon passed away.

Amongst these 163 cases of lead-poisoning, sometimes slight and sometimes severe, there was not one single case of true gout. Also in no case was *nephritis chronica* present.

Besides these, I have about 200 other cases which I have not been able to analyse on account of illness, but I am confident that in not one case amongst them was true gout present.

My experience does not agree with that of M. Lancréaux respecting nephritis and saturnine arthritis.¹ Why this should be, I do not know, but the observations made in my clinic are so careful and exact, that I cannot conceive it possible for such complications of lead-poisoning to be overlooked. Perhaps these results do not agree with your observations. True gout is seldom seen here, and that may be the reason why it is not found in association with lead-poisoning. Alcoholism, however, is often combined with it.

¹ Archives Générales de Méd., December 1881. (Expressed at the International Medical Congress, August 1881, and referred to in my paper.)

CASES FROM DR. GEE'S WARDS.

BY

J. ARMITAGE, M.B.

TWO CASES OF SUNSTROKE.

The two following cases of sunstroke, admitted to the Hospital under Dr. Gee's care, occurred on July 5, on which day the maximum shade temperature registered at Camden Town was 92° F.

In both patients some elevation of temperature occurred, and in one it is known to have been very considerable (109.8°). In both cases also the initial symptoms subsided in a great measure, only to be followed by a more abiding affection of the brain. The evidences of brain lesion, such as incoherence of ideas and slow, indistinct speech, passed away far more gradually than the tumultuous symptoms of the onset. After following out such a case as either of the two here described, the conviction forces itself on one's mind that the collection of symptoms grouped under the term sunstroke are due to more than a mere elevation of temperature; that there must also be a lesion, possibly inflammatory in its nature, of the brain substance. The extreme suddenness of the onset, and the short lucid interval between the period of high temperature and that of aberration of intellect, make it difficult to suppose that the hypothetical encephalitis is the cause of the high temperature, while the persistence and the apparent progress of the encephalitis make it equally difficult to believe that it depends solely on the initial elevation of temperature.

J. B. B., a porter in the General Post Office.

About 2 P.M. on July 5, this man was seen to stagger in coming downstairs in the Post Office. On reaching the bottom he lay down, but did not fall, and was convulsed, striking out, clutching his necktie, &c. He had been previously working in a very hot room, but not exposed to the direct rays of the sun.

Was brought to the Hospital at 2.30 P.M. He was then unconscious, pupils fixed, left rather larger than right. No paralysis of any kind could be made out. Breathing, stertorous, 36; pulse, 140, fair volume, regular. Heart's apex in natural situation; no dulness to percussion in the hypogastrium. Axillary temperature 107.5°. He was at once placed in a bath at 70° F., and kept there for about a quarter of an hour. The water could not be cooled below 70° F., though large lumps of ice were placed in it. His bowels were moved in the bath. Rectal temperature when placed in the bath, 109.8°; when removed from the bath, 109.4°. When placed in bed again he was very blue, and respirations 40, laboured and shallow; pulse 160, small and irregular. Six minims of æther were injected under the skin of the arm, and an enema of beef-tea and brandy given, which was immediately returned. Rectal temperature at 3.45, 104.5°; pulse, 132, regular, stronger. Ice-cap put on. Temperature at 4.30, 101.8°, but general condition remained unaltered. Slight convulsive movements of the face and hands were noticed at this time.

9.30 P.M.—Has passed urine and three loose motions under him. Three ounces of turbid urine withdrawn by catheter were found to be highly albuminous. Temperature had risen to 104.2°; pulse, 130, moderate volume, regular; breathing, 36, quiet; heart sounds natural. Has vomited twice. Now lies with his head and eyes persistently turned to the right side. Still unconscious, but has been able to swallow small quantities of milk, brandy, and beef-tea. Ankle-clonus, and patellar tendon phenomenon could not be produced.

July 6, 1.30 A.M.—Head and eyes still turned to right. Arms flexed and rigid, slight rigidity of legs also. Swallows badly. Eight oz. of a mixture of beef-tea, brandy, and milk were administered by means of a tube passed through the nose. Temperature, 102.0°; pulse, 120; respirations, 32; no stertor.

5 A.M.—Slept fairly; has said "Yes," but not in answer to a question. Pulse, 120; respirations, 32. Face, eyes, and arms as before. Temperature at 3 A.M., 100.2°.

10 A.M.—Temperature, 99°; pulse, 112; respirations, 30. Still unconscious, the rigidity of the arms and deviation of the head and eyes remain as before. Has passed two loose motions under him. Fundus natural in both eyes.

10 P.M.—Knows his sister and has answered questions. Pulse, 108; respirations, 30. The deviation of the head and eyes and the rigidity of the arms have ceased. Considerable inflammation of the conjunctivæ.

July 7.—Slept fairly, but tried once or twice to get out of bed. Answers questions quite coherently, but in a thick voice. Motions

and urine still passed under him. Temperature, 97°; pulse, 90, fair volume.

July 8.—Some delirium last night, but on the whole slept fairly. Rational this morning. Pulse, 60, regular; temperature, 97°. No longer passes motions and urine under him. Urine acid, sp. gr. 1027, no albumen. Very little muscular power.

From this time till July 19, he remained much in the same state, occasionally troublesome at night and stupid, but capable of answering in the day. His muscular power, however, increased. From July 9 to 19 he took 30 grains of bromide of potash every six hours.

July 19.—Is more troublesome in getting out of bed, passes motions and urine under him; decidedly more stupid and confused. Temperature yesterday evening, 99.4°; this morning, 97°. From this time till August 9, he slowly improved, and even began to read the paper, but very often held it upside down, and would seldom give any account of what he had read. The speech gradually became less distinct. He still, however, frequently passed his motions and urine under him.

From the 19th to 26th July, he had 10 grains of iodide of potassium four times a day. On the 26th the dose was increased to 15 grains, and so remained until September 14.

He gradually improved until his discharge on September 23, when the following note was taken:—He is now quite rational, and able to get about very well. Speech is still a little indistinct and manner somewhat fatuous, but he seems well able to understand what he reads and hears, and is quite willing to make himself useful about the ward.

Eliza B., a needlewoman, employed at a large drapery shop in Holborn. Admitted July 27 with the following history:—

On July 5, while at work in a room into which the sun was shining, she suddenly complained of headache and pain in her left side; soon after she became unconscious, and her skin was noticed to be very hot. She remained unconscious eighteen hours, and was convulsed during part of that time. She was treated with huge doses of calomel. On the following day she was seen by a medical man, who found her temperature to be 104.5°. She remained in a drowsy, semi-unconscious state for two days more, then great improvement began; her mind cleared and she was able to converse rationally. Three days afterwards she relapsed; her mental condition seemed dull; her speech also thick and frequently incoherent. There was no elevation of temperature; for a day or two she passed her motions under her, but did not habitually do so. In this state she was admitted.

Fundus of both eyes natural. No albuminuria.

August 3.—Has certainly improved in intelligence since admission; all movements and speech are slow but rational. No longer passes motions and urine under her.

From this time until August 12 she continued to improve; but from August 13 to 21 was very incoherent, and had delusions. Her temperature during this time was not elevated, and her general condition remained good.

She then began slowly to improve again, and on August 30 her conduct and conversation were noted as quite rational. A final note before her discharge on September 14 is to the effect that she does needlework and reads, and is going about the ward all day, being to all appearance as clear-headed and capable as she ever was.

A CASE OF ACUTE YELLOW ATROPHY OF THE LIVER.

R. A., a draper's salesman, aged 25, was admitted into Casualty Ward under Dr. Gee's care on April 11, with the following history:—He was quite well until eight days ago, when he had loss of appetite and malaise, but was able to continue his work. No vomiting or shivering.

Six days ago jaundice and slight nocturnal delirium were noticed; the jaundice deepened in intensity, but he was able to continue his work, and on the day before admission took a walk with a friend. No history of phosphorus-poisoning or of excessive drink could be obtained.

On the morning of admission he had furious delirium, and bit his attendant severely. He was admitted about 4 P.M. in a state of chloroform narcosis, three drachms of chloroform having been administered by the medical attendant to facilitate his removal in a cab.

On admission.—Deeply jaundiced; skin bathed in sweat; temperature, 96°; pulse, 78, regular; respirations, 24; the pupils moderately expanded, but insensible to light. Eyes continually rolled from side to side, but not with a jerking motion. The lungs and heart were natural. The area of hepatic dulness was much contracted, it extended in the nipple-line from the sixth rib to the lower border of the seventh rib, in the anterior axillary line from the upper border of the seventh to the lower border of the eighth rib, and in the posterior axillary line from the upper border of the ninth to the lower border of the tenth rib. The spleen was not felt.

April 11, 9 P.M.—Remains very much in the same state as on admission. Deeply comatose, not responding to even a severe pinch on the arms. Pulse, 80, regular; respirations, 24; temperature, 98°. He had not passed urine since admission; 36 ounces were withdrawn by catheter with some difficulty, owing to an old stricture. It was slightly alkaline, sp. gr. 1026, no albumen, abundant bile pigment. Examined under the microscope, it was found to contain granular casts stained with bile, and disintegrating crystals of triple phosphate; no deposit of leucin or tyrosin was found.

April 12.—Very restless night. Has not spoken. Bowels not open. Has passed urine freely under him. General condition remains unaltered. Pulse, 108, full, hard, bounding; temperature, 102.6°; respirations, 30. Slight haemorrhage from the nose in the night. No purpura spots seen. Still completely comatose. Some hiccough.

1.30 P.M.—Temperature, 105.4°; tracheal râles. The temperature rose no higher, and there was no further change until his death at 3.30 P.M.

Post-mortem forty-four hours after death.—The liver was pressed upwards and backwards, lying some two to three finger-breadths above the margin of the ribs. It was smaller than normal, weighing only 32 ounces. The capsule over the left lobe was shrunken. The gall bladder and ducts contained no bile. The under part of the liver was much decomposed. On section, the right lobe showed a reddish-yellow colour, mottled here and there with dark red spots about $\frac{1}{8}$ th inch in diameter. The natural liver structure could not be made out. The left lobe was of a more distinctly yellow colour. The general consistence was flabby and soft, less so in the left than in the right lobe. There were numerous ecchymoses in the mesentery and on the peritoneum lining the posterior part of the abdomen. There was a little blood-stained fluid in both pleurae, but no ecchymoses were seen. The heart was soft and easily torn. The lungs and kidneys highly engorged. The brain rather soft. Otherwise the organs were natural. Small fragments of the fresh liver were examined under the microscope. They showed an apparent increase of connective tissue, but no cells whatever, their place being filled by a granular debris. Pieces of muscle from the heart and diaphragm showed extreme fatty degeneration.

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A CASE OF
PSEUDO-HYPERTROPHIC MUSCULAR
PARALYSIS IN AN ADULT.

BY

PERCY KIDD, M.B.

This case is interesting and worthy of record mainly on account of the age of the patient.

Frank B., aged 24, came under my observation on February 1881.

The following is a brief account of his case:—

The patient complains of weakness in his legs and back, which has come on gradually during the last two or three years.

He states that his legs are large, and have been so since he was a boy, and that he used to be joked by his companions about the size of his calves.

Did not walk till two years old, and always had difficulty in running. Never had a fit or any nervous affection. Sight has been bad the last seven or eight years.

At my request the patient's mother wrote to me from the country, and informed me that her son had whooping-cough, inflammation of the lungs, and gastric fever in childhood. She expressly stated that no members of her own or her husband's family had ever suffered from any kind of paralysis.

The patient, however, told me himself, when I questioned him, that a younger brother aged ten years also had difficulty in running, but that his legs were not larger than natural. This boy was in the country with his parents, and I was unfortunately not able to see him myself.

No further information could be obtained from the patient or his mother.

Present condition.—Patient is of medium height and small frame; looks younger than he really is. When stripped he has slight lordosis on standing, not when sitting. Walks naturally on heels and soles.

Legs.—Calves very large and firm; thigh muscles wasted, especially in front, with the exception of the *vastus externus* muscle on either side, which is very large, and stands out prominently.

Gluteal muscles much wasted.

Arms.—Triceps on both sides much enlarged and firm. Biceps and flexor muscles of forearm rather large. Pectoral muscles—great wasting of lower or costal parts. *Latissimus dorsi* much wasted on both sides.

Deltoids, infraspinati, supraspinati, muscles of back, masseters, temporals, thumb muscles, and tongue unaffected.

Serratus magnus acts well on each side. Area of cardiac dulness natural, no murmur.

No rigidity or contraction of muscles.

Faradaic irritability of enlarged and wasted muscles only slightly diminished.

Patellar reflex very feeble on both sides, but a slight jerk can be elicited with trouble.

Skin reflex from soles weak. Sensation unaffected.

Bladder and rectum act naturally. No spinal tenderness.

Eyes.—Slight internal squint on right side; commencing cataract in both eyes; fundus healthy.

The patient has difficulty in rising from a sitting or lying posture. In the latter case he is obliged to help himself by turning on his face, getting into a crouching or squatting position, and then raising himself with his hands fixed on his knees. He can go up a few stairs, but soon tires. Walks fairly well, though slowly, on level ground. Grasp of hands good, extension of elbow feeble.

The interest of the case centres in the patient's age, and the fact that no decided failure of muscular power showed itself till the age of twenty-one. But from the account given by the patient himself of his having had difficulty in running, and enlargement of calves as a boy, I think there can be no doubt that the disease began as usual in early childhood. According to Dr. Gowers, this form of paralysis begins, as a rule, before the age of six in males, though somewhat later in the case of girls. We have here an illustration of the truth of Dr. Gowers' statement, that when the disease is late in showing itself the case runs an unusually slow course. The earlier the date of onset the more severe is the disease. This patient gives, as is not unusual, a

history of some acute affection, possibly typhoid fever, occurring in childhood, but we are unable to establish any definite connection between the two diseases. There seems to be no distinct hereditary influence present in this case, though the younger brother mentioned above may be the subject of the same disease.

Little has been said about the diagnosis, as it seems very clear, and, shortly speaking, rests on the following facts:—Gradual onset of symptoms; paralysis, preceded by muscular enlargement; enlargement of characteristic muscles, gastrocnemius, vastus externus, triceps; associated wasting of latissimus dorsi, and costal part of pectorals (on which Dr. Gowers lays great stress); difficulty in going up stairs, and peculiar way of rising up when lying on the ground.

The absence of any enlargement of the supraspinatus or infraspinatus, and the fact that no contraction of the calf muscles had occurred, are remarkable.

The prognosis in such a case would be less unfavourable than if the disease had developed earlier.

I had no opportunity of examining the microscopical condition of the affected muscles, and I have now unfortunately lost sight of the patient.



MEMBRANOUS PHARYNGITIS FOLLOWING SCARLATINAL INFECTION, WITH THE RECORDS OF A CASE.

BY
DAVID A. KING.

The opinion seems long to have existed that diphtheria and scarlet fever were in some way connected ; and though the question seems to have attracted but little notice, yet the connection has been allowed by almost all who have written upon the subject.

The cases upon which the opinion referred to is based are divisible into several classes :—

1. The simultaneous occurrence of the two diseases in the same person. Thus of 122 cases of diphtheria,¹ 57 were uncomplicated, 24 had scarlet fever, 9 had smallpox, 4 had measles, the remainder being each complicated by some other disease of no importance for our present purpose.

The prominent place occupied in the above list by scarlet fever does not lose its significance in regard to membranous pharyngitis, even if it be granted that many of the cases of diphtheria complicated with scarlet fever were really nothing more than severe examples of scarlatina anginosa.

2. Cases showing the similarity of the two diseases as regards their effects.

Thus Burdon Sanderson states ² that he has seen all the complications of one disease occur after the other, including paralysis after scarlet fever.

The conclusions as to the specific identity of true diphtheria and scarlet fever, that have been drawn from this and other facts,

¹ Report of Diphtheria Sub-Committee of Epidemiological Society, 1861.

² Report of Medical Officer of Privy Council, 1859.

have been too frequently and satisfactorily disproved to need discussion here.

3. Cases in which scarlet fever has arisen from undoubted diphtheritic infection.

Dr. Sanderson¹ has never known scarlet fever to arise in this way.

Dr. Ransome states² that it is very rare.

The only recorded case of the kind that I have met with is one of Dr. Hillier's. "A girl who had had scarlet fever three years previously was taken ill with diphtheria and died. Her sister, who had never had scarlet fever, went through a typical attack, though the only infection to which she had been exposed was that of the first girl."³

4. Cases in which diphtheria (so called) has followed scarlatinal infection.

Numerous cases of this kind have been recorded, but the following, which recently came under notice in the Hospital, is not without interest.

Emma B., aged 2, was admitted to Radcliffe Ward, under Dr. Gee's⁴ care, on September 24, 1881. From her mother's account, she had become unwell on the 22d with sore throat, and on the 23d a rash was noticed.

She had had measles, mumps, and hooping-cough a year previously.

She was covered with typical scarlatinal rash. Temperature, 102.8°; pulse, 146; respirations, 40. Tongue furred, with very red papillæ showing through. Tonsils very greatly enlarged, meeting the uvula in the middle line, and leaving but a very narrow chink below. Much muco-pus welled up from the pharynx, and there was considerable purulent discharge from the nostrils and glandular enlargement at the angles of the jaw. No membrane was at any time visible on the fauces. The glandular swelling went on to the formation of a sloughing bubo. Her urine never contained albumen.

Alfred W., a porter, aged 18, had lived in the same house with Emma B., and had frequently played with her up to the day of her admission to the Hospital. He was perfectly well up to the 24th, when he got wet—by no means an unusual occurrence with him—and had cold shivers up the back. His throat became sore on the 28th, without loss of voice or difficulty of breathing.

¹ Report of Medical Officer of Privy Council, 1859.

² British Med. Journal, vol. i., 1875, p. 171.

³ Hillier, Med. Times and Gazette, vol. i., 1859, p. 159.

⁴ I am indebted to Dr. Gee for permission to use this case, and to Dr. Armitage for notes of it.

but swallowing became very painful, though he felt compelled to make frequent attempts at deglutition on account of the abundance of his saliva.

He was admitted under Dr. Andrew's care on September 29th. An unhealthy-looking young man, with dark circles round his eyes and watery conjunctivæ. Tongue thickly coated with moist brownish fur. Tonsils much swollen and injected, with a small ragged adherent patch of brownish yellow membrane on each. At the back of the pharynx a similar patch three-quarters of an inch long and one-eighth wide was visible.

Cervical and submaxillary glands much enlarged and tender, but not fluctuating. He had no cough. Heart sounds feeble and muffled; no murmur. Pulse, 126, regular, small, and soft. Temperature, 103.6°. Bowels regular. Urine, acid, 1023, clear, pale, no albumen.

Had never had scarlet fever, and with the exception of a sore throat that lasted one day four years ago, had never been ill before. He was put on milk diet, and treated with liq. ferri perchlor. mins. xx. every two hours, with inhalations of carbolic acid spray for half an hour every three hours. On the following day very great swelling of the right half of the soft palate was noticed. The tonsils were so much enlarged that there was no longer even a slit between them, and swallowing became extremely difficult and painful. The submaxillary lymphatic glands became still more swollen.

Next day, the fourth of the disease, his condition became worse. His tongue and palate were thickly coated with very viscid mucoid yellowish matter, which hung in strands and festoons about his mouth. His lips and teeth were covered with sordes. Pulse, 105, fair volume, but very soft. Heart sounds very feeble. Breathing laboured, but not hurried or laryngeal. Temperature, 102.6° morning and evening. A purgative was administered, and the following day he felt better. While having his mouth mopped out with acid water, he pulled from the back of his throat a long broad ribbon of toughish membrane, resembling light brown paper that had been soaked in water, but more consistent. This measured three inches by one.

The swelling of soft palate and glands remained about the same, though the former looked yellowish as though pointing, and by the next morning had almost entirely disappeared.

From this time he made an uninterrupted recovery, the submaxillary swelling disappearing spontaneously, and his temperature, gradually falling, became normal on the seventh day.

His urine at no time contained albumen; and during the following three weeks that he remained in Hospital he showed

no signs of loss of accommodation, or of any other kind of paralysis. No rash was ever observed, though frequently looked for, and no desquamation occurred. Now, unless this diphtheritic attack were due to infection from the girl, it must have either been a coincidence or they must have had a common cause; and if a common cause, that must have been scarlatinal infection, since no trustworthy cases of Class 3 are on record. And in the face of the many cases to be found scattered through our medical periodicals in which a similar sequence occurred, it seems unreasonable to assume mere coincidence. It may be argued that this man's illness was really scarlet fever without rash. If this were the case, not only was the sore throat the only symptom of the disease, but it was membranous. And if further disproof were wanted, it might be found in the pretty numerous cases where people already protected from scarlet fever by a previous attack have, after scarlatinal infection, contracted a membranous pharyngitis.

Thus Dr. George Johnson¹ cites the case of a boy who, a month after the beginning of an attack of scarlet fever and while in advanced convalescence, showed all the signs of diphtheria, with croup and bronchitis, these symptoms commencing immediately after he had slept for two nights with a brother barely convalescent from scarlatina anginosa. The boys had, each of them, been rigorously isolated from one another [in different houses], and from all other sources of diphtheritic contagion, till they slept together two nights before the diphtheritic signs manifested themselves.

Dr. Ballard,² while deciding against any connection existing between scarlet fever and diphtheria, states that he has more than once seen persons with sore throat when attending upon patients suffering from scarlet fever, and this at a period as short as a year from their own attack. "And this," he concludes, "appears to me a new mode of viewing the matter."

With regard to the nature of the connection thus shown to exist, little appears to be known.

Dr. Gee³ considers that there is "no question that the dire sloughing and gangrene described so well by the older writers (e.g., Huxham and Heberden), and on their authority still attributed to scarlet fever, appertain altogether to diphtheria."

Trousseau⁴ speaks of diphtheria as a *complication* of scarlet fever; and, distinguishing it from the severest form of scarlatinal sore throat, he suggests that, just as any solution of continuity in

¹ Lanoet, vol. i. for 1875, p. 8.

² Medical Times and Gazette, vol. ii. for 1859, p. 78.

³ Reynolds' System of Medicine, vol. i. p. 153.

⁴ Syd. Soc. translation, vol. ii. p. 79.

the skin may become infected by diphtheria, so may the abraded pharynx of scarlet fever. And Dr. Ransome¹ remarks in this connection that "one fermentation of organised beings frequently prepares the way for another." These quotations, however, throw but little light on cases of diphtheria due to scarlatinal infection. Such cases become explicable when we remember that diphtheritic appearances and symptoms frequently complicate many disorders, and may be brought about by a variety of causes (e.g., chemical irritants, cold, drinking boiling water, &c.)

The strongest evidence against these cases of so-called diphtheria truly belonging to the specific disease is afforded by the striking figures given in the Report of the Medico-Chirurgical Society's Committee on Croup and Diphtheria (1879), where of twenty-five fatal cases of true diphtheria only three were above the age of seven, while of twenty-two cases where (as in the post-scarlatinal cases) the membrane was confined to the fauces, only two were under seven years of age. I can find no case recorded where there was post-mortem proof of membrane in the larynx, and only one, mentioned above, in which "croup and bronchitis" rendered its presence probable. Thus these cases bear out Rousseau's saying that "scarlatina does not like the larynx."

And to those who look upon early albuminuria as a pathognomonic symptom of diphtheria, it is interesting to observe that in only one of the cases of membranous pharyngitis following scarlatinal infection that I have found records of, is albuminuria stated to have occurred, whilst in the large majority it is distinctly declared to have been absent. The exception is recorded by Dr. Ransome. It was the case of a master in a school where scarlet fever existed, who went home ill with diphtheria and albuminuria, but with no rash. Six days after his arrival his mother had diphtheria, but no albumen, and no rash.

In conclusion, it seems highly probable that the scarlatinal poison is capable of producing a form of membranous pharyngitis, and that, too, in persons who have never before reacted to it, as well as those protected from its usual effects by a previous attack. But one other conclusion is open to us, and Wade,² in a series of aphorisms on diphtheria, while he refuses to make any statement concerning the nature of the relation which he admits to exist between the two diseases, hints at this when he says: "Scarlet fever is not necessarily accompanied by a rash." This fact is sufficiently well known, but we cannot conclude from it that these cases are really ones of scarlet fever without rash, for some of the cases have closely followed an ordinary attack of

¹ Loc. cit.² Lancet, vol. ii. for 1862, p. 204.

scarlet fever in the same persons ; and even if, in spite of their mild character, these be taken as cases of scarlatina with true diphtheritic complication, yet we cannot similarly explain the cases in which persons protected by an antecedent attack of scarlet fever have contracted membranous pharyngitis.

TWO CASES OF INTESTINAL OBSTRUCTION, WITH REMARKS.

BY

DAVID A. KING.

These cases strikingly illustrate, firstly, the difficulty encountered in deciding the question of operative interference in cases of intestinal obstruction, and, secondly, the eminent success attending the expectant treatment of some cases.

They cannot, however, be looked upon as contrasting different lines of treatment, for, as will be seen, they differed as much in symptoms as they probably did in causation.

CASE I.—*Intestinal Obstruction by a Band—Ileus—Gastro-Enterotomy—Death.*

Ann H., aged 23, was admitted under Dr. Duckworth's care at 10 P.M. on June 14, with the following history:—

Married for last eighteen months, but has never been pregnant, and up to the present illness has always enjoyed good health.

On the evening of the 10th inst. she complained of pain across the abdomen, just above the umbilicus. This did not come on particularly suddenly, but has persisted on and off ever since it began.

Her bowels, previously quite regular, acted last on the 10th. Could not say whether any flatus had passed since then.

Began to vomit on the evening of the 10th, and up to admission had returned everything she had taken.

Her urine had been scanty for a day past. Had had no discharge from the anus.

Had been under treatment outside for three days past.

On admission her general condition was fairly good.

She was a thin, pale-faced young woman, with a calm, not particularly anxious, expression.

Shortly after admission she vomited a small quantity of brown and very foetid but not stercoreaceous fluid.

Her tongue was clean. Pulse, 104, intermittent, small, and soft.

Her abdomen was not distended; no tumour visible or palpable, and considerable pressure was borne with but slight discomfort.

Temperature, 97.6°.

An enema of $\frac{3}{4}$ i. gruel, $\frac{3}{4}$ i. castor-oil, and $\frac{3}{4}$ j. olive-oil was administered without difficulty, some portion returning towards the end of the injection; nothing, however, was brought away beyond one small scybalum.

She was put on milk diet and $\frac{3}{4}$ v. brandy, and took as medicine v. mins. of Battley's solution in calumba draught every two hours.

On the night of admission she slept about an hour. Abdominal pain constant, but not severe. Vomited constantly. Vomit faecal in colour, but not in odour, though that was offensive.

The following day, the sixth of the obstruction, a copious enema of more than $\frac{1}{2}$ j. of gruel and olive-oil was administered, none escaping during injection. Nothing, however, was brought away. Bladder not distended, but there was complete suppression of urine. She commenced to menstruate naturally.

Mr. Savory saw her, and by his advice operation was delayed and enemata continued. $\frac{1}{2}$ jj. of olive oil were accordingly injected through the long tube with the stomach pump, but nothing but the oil returned.

On the seventh morning she had not vomited for ten hours; had dozed at intervals, and only taken one dose of Battley.

The abdomen was rather more distended, but not tender. Tongue rather dry and brown. Pulse, 126, full, not unduly soft.

The balance of opinion, after a consultation of surgeons, was in favour of an operation. The patient was accordingly placed under the influence of chloroform, and Mr. Baker made an incision for three inches in the linea alba below the umbilicus, under antiseptic precautions.

After the peritoneum had been opened and a few coils of intestines passed through the fingers, it was noticed that some portions of small intestine were completely collapsed, whilst others were much dilated. The gut was then systematically overhauled in one direction, and the abdominal wound enlarged twice upwards till it just passed to the left of the umbilicus.

Finally, at the bottom of a deep hole, the intestines being held on either side, the seat of constriction was distinctly seen. This was only reached after a considerable length of intestine had been passed through the operator's hands; and the walls of the gut

becoming thicker and more congested, the constricted portion was concluded to be the jejunum.

A narrow, gristly-looking transverse band, about one-eighth of an inch in diameter, was seen stretching across and compressing the intestine, which was much expanded above it and contracted below. There was no knuckle or loop of intestine, but only a single piece under the band, which appeared to pass from near the upper origin of the mesentery to another piece of gut.

The band was no sooner divided on a director and the intestine brought forward, than a gush of liquid faeces occurred, which, after a little examination, was found to come from a ragged hole in the sloughy and wet-blotting-paper-like intestine at the seat of strangulation.

For about a quarter of an inch of its continuity the canal was represented by tissue in this condition. This portion having been seized by the hand of an assistant, the peritoneal cavity was twice thoroughly irrigated and sponged out with warm carbolic lotion, 1-60, and so freed of faeces.

The edges of the perforation were then stitched into the partially closed abdominal wound with silver sutures.

During the manipulation of the intestine numerous highly caseous mesenteric glands were encountered.

After the operation, gr. $\frac{1}{2}$ morphia was injected sub acute.

Patient remained quiet for some three or four hours, but never rallied. She rapidly became violently delirious, shrieking frequently; her extremities cold and pulseless; and in spite of some ounces of champagne poured down her throat, and half a drachm of brandy hypodermically injected, she died at 9.30 on the seventh day of the obstruction.

At the post-mortem examination, the cut ends of the band were found, with the fine ligatures that had been used to arrest bleeding from them still attached.

One end of the band was found near the upper part of the vertebral attachment of the mesentery, the other on the intestine, just below the seat of constriction.

Remarks.—The symptoms on which the accurate diagnosis was based were, as regards acute obstruction, the completeness of constipation, and the persistent and foetid vomiting; as regards its nature and seat, high up in the intestine, the suppression of urine, absence of abdominal distension, general acuteness of all the symptoms, the large quantity of injection retained, and the absence of abdominal tumour and of sanguous or other discharge from the rectum.

Could the operation have been performed sufficiently early, there can be no doubt that this was a case in which eminent

success might have been expected to follow it. But to have had much chance of success it must have been performed prior to the commencement of gangrene—at a period, namely, before that at which the patient was admitted.

Even had a surgeon been found willing to operate in the absence of grave symptoms, it is doubtful whether at such an early period an accurate diagnosis could have been made.

Since the constricting band passed over a portion, but not over a loop of intestine, it is difficult to see how it could have caused any serious constriction except by the displacement of one of its attachments rendering it more tense; for the band was a growth of no recent date, and must have existed long anterior to the strangulation. If this be granted, then there is no evidence to prove that had the patient from the first been kept well under the influence of opium, so that her intestines might have had absolute rest, the constriction might have been relieved, strangulation averted, and the obstruction overcome, just as it was in the following case, and that too in spite of the facts that in the latter the obstruction was probably lower down and the symptoms less acute.

CASE II.

J. H., aged 57, a carpet-bag maker, was admitted on the afternoon of July 12, under Dr. Andrew's care.

Whilst standing smoking by a window at 9.30 on the morning of Sunday the 10th, he was seized with sudden cramp-like pain across the umbilical region, and this pain had continued with but few intermissions up to the time of admission. His bowels, previously quite regular, had acted last on the afternoon of the 9th, and since then he had not passed even flatus. About a week after admission he said he had been subject to cramps and spasms in his abdomen for twenty-five years past; these, however, had been very slight, and he only remembered them after several cross-examinations on the subject. Vomiting began two hours after the onset of pain, and had continued after everything he had taken.

His urine had continued of normal amount, but had become very high coloured.

He had never been ruptured, nor had he ever suffered from constipation before.

Before admission he had taken one or two ounces of castor-oil and a couple of purgative draughts without relief.

He had passed no blood nor any kind of discharge per rectum. Had never overstrained himself, and the only occasion on which he was laid up was many years ago, when Mr. Paget amputated his left foot for gangrene.

Had no family history of cancer or other hereditary disease.

He was a fairly nourished man of sallow complexion, calm expression, and generally lay on his back rubbing his abdomen.

Tongue large, thickly coated with dry whitish fur.

Heart and lungs healthy.

Abdomen distended but not very tense; tympanitic all over and slightly tender near the umbilicus. Distension uniform and not very great; no coils of intestine visible and no tumour palpable. Gurgling could be felt in the right iliac fossa, but there were no spots, and the spleen was impalpable. Nothing unnatural was discovered on a rectal examination. The inguinal canals were clear, and no fulness was found in either groins, scrotum, Scarpa's triangle, or under the glutei.

Liver appeared of normal size.

He vomited very frequently a quantity of bilious matter, which had no faecal odour.

Pulse 90, regular, full and rather incompressible. Complains of occasional slight frontal headache, and sleeps only by short snatches, frequently waking up to vomit.

Throughout his stay in the Hospital his temperature was normal or subnormal. An enema of oiss. warm water was followed by the evacuation of a fair quantity of dark, almost black, small and soft faecal masses, with a little mucus but no blood. This was repeated in the evening with no result but the return of the water.

He was put on milk oil, eggs iv., brandy 3i., and ordered to take a mixture of these in frequent but very small quantities.

A poppy fomentation was placed on his abdomen, and he took as medicine mins. v. of Battley's solution in 3ss. of hst. ammoniae acetatis every three hours.

On the fourth morning of the obstruction he had had a fair night's rest, vomiting three or four times.

An enema of oiv. warm olive-oil was administered through the long tube (eight inches) with the stomach pump. On withdrawing the tube all the oil returned and was quite clear.

Vomiting continued, and the abdomen had become rather more tympanitic.

He was seen by Mr. Savory, who recommended a continuance of the enemata, and advised no operative interference.

He was ordered to take nothing by the mouth beyond mins. v. of Battley's solution in a drachm of water every three hours, and, to quench his thirst, a little ice-water occasionally. He was fed with nutrient enemata of beef essence, eggs, brandy, and milk every hour, two ounces being administered at a time. These enemata were well retained for more than five days.

An enema of ov. administered the same evening was followed by the evacuation of about forty small, soft, dark faecal masses.

On the fifth day he remained in much the same condition, vomiting occasionally after his medicine, but had had a good night's rest, and was free from pain. During the day he passed a small quantity of oil mixed with yeasty-looking matter, probably the remains of the nutrient enemata.

A surgical consultation was held, and a unanimous recommendation of immediate operation given.

Dr. Andrew decided not to operate at once.

On the sixth day he had had an excellent night, had not vomited once, and had been quite free from pain. The abdomen was a good deal more distended, being now highly tympanitic, and offered rather more resistance below and to the left of the umbilicus than elsewhere; in this situation, too, the percussion note was rather higher pitched (duller) than elsewhere.

The urine was normal in amount and quality (oij.). His pupils were much contracted; felt no headache, though he had not missed more than two doses of opium.

An enema of oij. warm olive-oil was administered through a tube that was passed sixteen inches up the rectum. This was followed by no immediate result beyond the evacuation of the oil; but some three hours after, at 3 P.M., he commenced to pass flatus with much noise, and continued to do so till the next day, when the first faeces were passed.

He still vomited occasionally, and had a few griping pains in the abdomen. On the seventh day the vomiting was much less. Pupils much contracted. Patient not drowsy. No headache. Pulse 81, fair volume and firm. Tongue dry, with some thin brown fur. Much less abdominal distension. About mid-day he passed a fairly large quantity of semi-solid matter, like grey-coloured faeces, and in the oil passed the night before there was found a large quantity of flaky green matter. From this time vomiting ceased. His bowels were evacuated regularly, the faeces for the first week being liquid and very pale, and he slowly recovered his strength. He took food by the mouth for the first time on the ninth day, and began meat on the twentieth, leaving off his opium at the same time, though the frequency of its administration had been diminished a few days after the obstruction had ceased.

Two months after his discharge he was found healthy and strong, though he looked anaemic. He had continued in good health; had had no difficulty with his bowels; and when weighed was found to have increased eight pounds.

Remarks.—With regard to the seat of the obstruction, the

absence of suppression of urine, and still more the great abdominal distension, pointed to the colon or lower part of the small intestine as the affected part.

The very sudden onset of symptoms, in the absence of discharge from the rectum and of abdominal tumour, indicated either internal strangulation by a band, or torsion. Now, the assumption that had the obstruction been due to a band the case must have terminated fatally is purely gratuitous; and although obstruction by a band low down is uncommon except in early life, yet there is nothing in the case itself to contra-indicate this condition. Indeed, the cramps from which the patient suffered for twenty-five years may possibly have been due to adhesions, of which a constricting band may have been one, all of them being the results of some forgotten peritonitic attack.

Next to the sigmoid flexure, the cæcum is the commonest seat of torsion, and the symptoms presented by the patient accord well with those described as occurring in torsion.

The copious enemata so frequently employed in this case must, I think, be credited with some share in the removal of the obstruction, and this would be the case with torsion more probably than with internal strangulation.

In the face of those difficulties, the diagnosis between the two conditions was impossible.



TWO CASES OF CEREBRAL DISEASE.

BY

SAMUEL GEE, M.D.

I.—CASE OF HEMICHOREA.

John A., 54 years old, was brought into the Hospital on November 7, 1881. The notes were taken by Mr. W. Whitworth.

For more than forty years he has been a Venetian-blind painter. He has always taken great care in cleaning himself after his work. He has never ailed with colic or wrist-drop. There is no blue line on his gums.

He has drunk much ale always, and spirits sometimes. He has not had syphilis.

He has suffered from gout for the last seven years; two years ago he was laid up with it for five weeks.

He has had a winter cough for the last five or six years.

Four months ago his right hand for a short time was shaky when he held his newspaper.

Present illness.—On November 2 he was going to his daily work in the morning when he was suddenly seized with twitching in the right hand. He found that he could not hold his paint-brush still, and therefore he went back home. Straightway his right leg also began to twitch, and henceforward the movements of the right limbs have become steadily worse.

His breathing has been tight since November 2, and his nights have been restless.

State on admission.—Well fed; face dusky; lips bluish.

Right arm and leg ceaselessly agitated with violent choreic movements, which cease during sleep only. Face and tongue not affected. Speech easy. Patellar tendon reflex natural. Nostrils and eyes widely open. Pupils natural.

Feeling natural on both sides. Sight and hearing good. Ophthalmoscope shows nothing amiss.

Understanding natural.

No signs of heart-disease. Sonorous râles over lungs.

Belly natural. Pulse 80, regular. Urine, sp. gr. 1020, neutral, no albumen.

He became steadily worse. He could not sleep at night. He had several fits of violent delirium. His catarrh became worse. A large abscess formed around the right elbow, due, no doubt, to the constant chorea of the arm.

On the morning of November 23 he died.

The morning and evening temperatures were as follows:—

	Morning.	Evening.		Morning.	Evening.
Nov. 7.	...	97°	97°	Nov. 15.	...
" 8.	...	97°	98°	" 16.	...
" 9.	...	97°	?	" 17.	...
" 10.	...	101.2°	100.8°	" 18.	...
" 11.	...	98°	100°	" 19.	...
" 12.	...	99.6°	100.4°	" 20.	...
" 13.	...	100.6°	100.8°	" 21.	...
" 14.	...	98.6°	101.2°	" 22.	...

Post-mortem examination thirty hours after death.—Body well nourished. Belly very flatulent. Abscess around right elbow as before described.

Chest: rib-cartilages ossified. Left lung adherent behind and below. Both lungs emphysematous and oedematous.

Heart somewhat large. Valvular segments natural. Sinuses of Valsalva distended. Immediately above the mouths of the coronary arteries there is a low and narrow ridge of calcareous matter, enough to be a source of small emboli.

Liver, spleen, stomach, and intestines natural.

Kidneys together weigh eleven ounces, capsules strip off with slight difficulty, cortex rather narrow and granular.

Spinal cord natural.

Skull and membranes of brain natural. Arteries at base of brain a little opaque, and stiffened here and there; no embolus discovered so far as they could be traced. Cortex of brain natural. In the internal capsule on the left side was a small and well-defined portion of altered brain the size of a lentil. It was softened and of an ochre hue. It was close alongside the thalamus opticus, just where the anterior third of the thalamus joins the middle third, and separated from the nucleus lenticularis by a band of healthy white brain tissue. In the posterior half of the right thalamus was a small reddish cyst the size of a millet seed.

Mr. Oscar Clark, my house-physician, did not discover any miliary aneurysms on the small arteries of the right thalamus.

I wish to draw attention to the following topics:—

1. This was a case of simple chorea.
2. The onset was sudden, and was not attended by the slightest apoplectic symptoms.
3. There was no antecedent palsy.
4. There was no hemi-anæsthesia.
5. The muscles supplied by the cranial nerves were not affected.
6. I have no doubt that the structural lesion causing the hemichorea was the softened portion of the internal capsule on the opposite side of the brain. The lesion must have been in front of the cortico-muscular or direct pyramidal strand of fibres. In cases of hemichorea associated with hemi-anæsthesia the lesion has been found behind the pyramidal tract.
7. The disease was most likely embolic. There was a source of emboli in the aorta. The brain tissues were not separated by a clot of blood; they were only softened and coloured by blood. The faulty vessel must have been small. No embolus was found in the branches of the middle cerebral artery (which supplies the internal capsule), so far as they were traced.

NOTE TO CASE OF HEMICHOREA.

A further examination, by Mr. Bowlby, of that part of the brain in which haemorrhage had taken place showed—

The remains of thrombi in the capillaries; the blood pigment alone remained, no trace of the corpuscles being present; these thrombi were evidently of some duration. In the neighbourhood of the thrombosed capillaries the brain tissue presented all the appearances of "softening" in different degrees. Part of the brain substance was simply infiltrated to a greater or less extent with small white-blood cells, but in other parts all trace of true brain tissue was destroyed. These appearances were probably the result of an embolus lodged in an artery nearer the heart.

II.—A SECOND CASE OF GELATINIFORM ENLARGEMENT OF THE PONS VAROLII.

In the thirteenth volume of these Reports Dr. Kidd published the history of a case of mine, which showed at the post-mortem

examination a peculiar kind of enlargement of the pons Varolii and adjacent parts. I have now to report a second case of the same sort.

George William B., aged 9½ years, admitted into the Hospital for Sick Children on October 12, 1881.

His illness began in July 1881 with attacks of giddiness, which gradually became more and more frequent. At the same time he had twitching movements in the right hand. For six weeks he had squinted and seen double. For the past fortnight he had failed both in speech and walking; he talked thickly, and had a difficulty in getting his words out. Three days ago he became unable to walk across the room. Of late he has slept eight or ten hours at a stretch. For the past month he has vomited most days.

State on admission.—The notes by Dr. Abercrombie.

Not ill fed. Sits with bowed back and head slightly bent over to right shoulder. Has a somewhat vacant look, owing to the fixity of his eyeballs and his half-open mouth.

Left eye not quite so widely open as the right. Slight converging strabismus. Can move eyes upwards or downwards, but cannot turn either eye inwards or outwards. Pupils rather large; they act to light, but not to accommodation.

Masseters act well on both sides.

Muscles at right angle of mouth act a little better than those at the left. The mouth is always partly open, and saliva dribbles from the corner. (On November 10, when told to blow out a candle, he could pout his lips but very imperfectly. He could not blow at all; pinching the nose made no difference. When told to whistle, he seemed to make no attempt to do so.)

Soft palate, and uvula hang down and do not move on his speaking or when touched. Fluids return through his nose. (Latterly he often choked also when swallowing.)

Tongue protruded straight though slowly, not tremulous. (On November 10, it is noted that he had more difficulty in protruding his tongue; he could not get it beyond his teeth.)

His speech is hesitating and monotonous, somewhat thick and nasal. (November 10, articulation very bad, his utterance being unintelligible.)

Grasp good with both hands; equal on the two sides. Gait very staggering, he would fall were he not supported; the staggering is just the same whether one eye is closed or both.

Knee-jerk markedly in excess. Cutaneous reflexes cannot be obtained; sole of foot, cremasteric, abdominal, scapular.

There were no convulsions at any time.

Understanding is perhaps a little weakened. (November 10, intellect more impaired.)

Smell natural.

Sight with each eye good. When he looks with both eyes he sees double if the object be held to the left of the middle line; the two images are on the same horizontal line, the false image being to the left of the real. The margin of both optic discs is somewhat hazy; veins are somewhat full, but not tortuous. (November 15, discs almost clear.)

Hearing not very sharp with either ear, no otorrhoea.

Taste natural.

No loss of sensation in face or limbs. Moving the uvula does not cause retching, but the pharynx seems to be sensitive.

Pulse very small and frequent.

The first afternoon he was in the Hospital I went up to him, as I thought he was sobbing. He was breathing in a very convulsive manner, much as a child does after a fit of coughing. He seemed to be trying to speak, but I could not understand him. Each fit of sobbing breathing lasted for ten or twelve breaths, and then he would breathe quietly for a few minutes. He was quite conscious. These attacks recurred from time to time.

Five times whilst in the Hospital he fell into a deep coma, from which he could not be roused. The first comatose fit lasted many hours, the second eight hours, the third nine hours and a half, the fourth twelve hours, and the fifth twelve hours.

His digestive organs were natural, excepting that he vomited sometimes.

There were no physical signs of disease in chest or belly.

Urine natural.

Temperature, taken twice daily, only once rose above 99°, namely, to 99.4°.

He never complained of headache.

He died at 1 A.M. on November 16, rather unexpectedly.

Post-mortem examination.—All the organs natural excepting those of the head.

A large effusion of serum into the ventricles of the brain.

Pons Varolii very greatly enlarged, and the medulla oblongata also, down to the level of the lower border of the olfactory bodies. The enlargement was very translucent, colour of the parts unchanged; indeed, in all respects like that described in St. Bartholomew's Hospital Reports, vol. xiii, p. 272. The whole of the floor of the fourth ventricle, and also the walls of the aqueduct of Sylvius, were involved in the disease.

The crura cerebri were flattened out by the pressure from above, but they were not enlarged. The corpora quadrigemina were very much flattened. The aqueduct of Sylvius quite shut up by the pressure of the enlarged pons Varolii. The third, fourth, and

sixth nerves were obviously much compressed. The basilar artery was quite embedded in the swollen pons.

Cerebellum natural.

For the microscopical characters of this form of bulbar disease the reader may refer to Dr. Kidd's paper. So far as I know, the disease has been hitherto undescribed.

ON
SUPRA-PUBIC PUNCTURE OF THE BLADDER.
BY
THOMAS SMITH.

The able and successful advocacy of the rectal puncture of the bladder by Mr. Cock, recorded in the thirty-fifth volume of the "Transactions of the Medico-Chirurgical Society," has so discredited the supra-pubic operation as to cause it to fall into almost complete disuse, at least in this country; and thus I believe it has come to pass that I am the only surgeon connected with a metropolitan hospital who has systematically adopted the supra-pubic puncture for the relief of retention of urine in preference to the rectal operation.

It is only necessary to refer to the standard works on surgery of the present day to appreciate that surgical authors do not by any means hold the operation in high estimation.

Thus Mr. Erichsen writes, "Puncture above the pubes can very seldom be required." Mr. Bryant, in his Handbook of Surgery, treating of retention of urine irremediable by the catheter, states, "The best and most expeditious practice is to puncture through the rectum;" and elsewhere he remarks, the operation for puncturing the bladder above the pubes may nearly be forgotten.

In Mr. Gant's work it is stated that "the supra-pubic puncture is not generally adopted; the objections are risk of urinary infiltration or of fistulous opening remaining."

Mr. Spence, writing on the subject of prostatic retention, recommends the formation of a false passage in preference to supra-pubic puncture, and, as I read him, to any other kind of puncture.

He advises that "if the natural passage is completely closed,

so that one cannot introduce an instrument, it is preferable to make a false passage through the prostate; a new and more direct canal is thus formed and great benefit experienced, safer and more satisfactory in its results than puncture over the pubes."

Sir Henry Thompson takes a more favourable view of the operation, and states as his opinion that no doubt the rectal puncture is the safest operation in most cases where the bladder has to be opened; on the other hand, a very considerable enlargement of the prostate makes the supra-pubic operation necessary. Elsewhere he writes of this operation as follows:—"It is well to remember that if the cannula slips out (after puncture), you will not be able to get it into the same opening again; the muscular fibres of the bladder instantly close, and you have to make another puncture."

The same author, however, recommends that where there is a probability that the patient will require the artificial relief for some time, the supra-pubic puncture should be performed; and it is well known that Sir Henry had performed and advocated the supra-pubic operation (not for retention of urine), but for the alleviation of urinary miseries in advanced cases of bladder disease from prostatic enlargement.

Mr. Holmes, in his smaller work on Surgery, speaks favourably of the operation as one of no difficulty, and, as he believes, of little danger; though I cannot gather that he has ever thought well enough of it to put it in practice himself.

But it may be said, Why puncture the bladder at all in cases of retention of urine? The urine can always be drawn off with a catheter, by the exercise of skill or force, or by both combined, and this holds good whether the retention arise from stricture or from prostatic enlargement.

There can be no doubt that since the introduction of more flexible instruments, such as the black bulbous catheters, the coudé catheters, and those made of red rubber, the facilities for relieving urinary retention without the exercise of force have largely increased, and the necessity for puncture of the bladder has correspondingly diminished. It is also probable that as the use of these instruments becomes more general among patients and practitioners, the conditions which justify the operation of puncture will become still more rare.

Yet there will occasionally occur cases of urinary retention, especially in patients advanced in life, where even in skilful hands no means of evacuating the urine remain but forcible catheterisation or puncture of the bladder.

As regards the first of these means, notwithstanding the high authority of Professor Spence, it must be considered unjustifiable,

both in cases of prostatic retention, and in that arising from stricture. He speaks of the formation of a false passage through the prostate as a new and more direct canal, as conferring great benefit on the patient, and as safer and more satisfactory in its results than puncture over the pubes.

Such experience as I have does not lead me to the same conclusion, and it may be for the reason that Professor Spence has a much larger experience of the method he advocates, while I have a larger knowledge of the plan of treatment he decries. At all events, I cannot concede that a forcible entry into the bladder through the prostate is more satisfactory in its results than puncture over the pubes.

In reference to forcible catheterisation in cases of retention from stricture, though it was once a recognised procedure in surgery, and though even now it is occasionally—perhaps more than occasionally—employed, I am not aware that the plan has at present any avowed advocates.

Mr. Cock, in his paper on the rectal puncture of the bladder, thus expresses himself on the forcible use of the catheter: "The surgeon may take a small but strong catheter, one that will not easily bend; and firm of purpose, with unflinching hand and fearless—I had almost said remorseless—heart, he may carry it through all intervening structures and obstacles into the bladder."

On the general question of the advisability of puncture for the relief of retention, most surgeons will be disposed to agree with Mr. Cock, that for absolute retention of urine unrelievable by the legitimate¹ use of the catheter and non-instrumental means, puncture of the bladder should at once be resorted to; that this operation affords the safest and speediest relief to the pressing necessity of the patient, and gives more promise of a future restoration to a normal condition of urination, than any other means of treatment.

In relation to the comparative value of the rectal and supra-pubic puncture of the bladder, I propose to enumerate the advantages of both methods, and to point out the defects, inherent or accidental, of each plan.

Both operations, under the circumstances stated above, afford, as I believe, the safest, speediest, and least painful means of relieving retention.

The operation through the rectum can be but rarely applicable to prostatic retention, for obvious reasons. It is only a very temporary means of providing for the exit of urine, owing to the difficulty of retaining the cannula *in situ* during defæcation. It

¹ I count as illegitimate the passage of a catheter through any other passage than the urethra in its entire length.

necessitates the confinement of the patient to the recumbent position, and involves the assiduous attendance of a nurse; and should the cannula become displaced, it is very difficult, or more often impossible, to replace it without a fresh puncture.

The supra-pubic operation is applicable to all cases of retention in which the bladder rises above the pubes; while it is as safe as the rectal puncture, it is easier of performance. It affords not only a temporary relief, but, if need be, it can be used as a more or less permanent means of voiding urine. It does not interfere with the function of defæcation, nor is there any serious difficulty in securing the cannula *in situ*. Should the cannula escape from the bladder, it is far more easily replaced than in the rectal operation.

The patient need not be confined to bed, and the attentions of a nurse can be dispensed with so soon as the patient becomes familiar with the management of his cannula; while from the first he can at will draw off his own water.

The function of urination being completely under the patient's own control, where other circumstances are favourable, he can resume the ordinary avocations of life, and enjoy many of its so-called pleasures.

The catheter or cannula is much less liable to displacement than in the rectal operation. Not only is it comparatively easy of replacement should it escape, but after a few days it can be removed, cleansed, and replaced by the patient himself.

From the fact that after supra-pubic puncture the flow of urine can be diverted from the normal channel of exit for any time that may be desired, this operation exercises a more beneficial effect on the original cause of retention than does the rectal puncture.

And this is true whether the disease be of the urethra or prostate; and cases are here recorded where in great prostatic enlargement the power of voluntary micturition *per penem* was entirely regained.

Where the supra-pubic puncture has been employed for so-called impermeable stricture, it may subsequently afford a means of treating the stricture on advantageous terms, namely, from the vesical side of the obstruction; and from the ease with which the interior of the bladder can be cleansed through the supra-pubic opening, one has unusual facilities for the local treatment of chronic cystitis.

An objection to the supra-pubic operation has been raised on the score of its liability to cause extravasation of urine. This objection has probably been evolved from a theoretical consideration of the subject, and not from a practical experience of the operation. I have seen no such tendency to extravasation, though I have often seen urine escaping by the side of an ill-fitting tube.

I have known it to occur in one instance where a catheter was passed through the external wound and not into the bladder. In one case a small subcutaneous abscess formed over the situation of the puncture, the catheter having been removed prematurely, that is, before the primary cause of obstruction had been sufficiently relieved.

I have seen no serious local trouble arise from the puncture, but occasional inconvenience from leakage by the side of the catheter.

In the following case the puncture was made for prostatic retention, and the patient is now over eighty years of age, and is still wearing a cannula, the operation having been done three years and a half ago.

An unusual circumstance in this case was the existence of an enormous hernia, the neck of which occupied the supra-pubic region on one side up to the middle line; the puncture was therefore made into the displaced bladder, through the muscular substance of the abdominal wall.

CASE I.

On February 1, 1878, I saw a patient of Mr. Cripps of Cirencester, set. 79. He was suffering from retention of urine from enlarged prostate. He had been relieved by the aspirator for two or three nights before my seeing him. His bladder was much distended; a catheter could be passed the full distance in the direction of the bladder; no urine flowed, but some blood.

This patient had an enormous irreducible inguinal hernia on the right side; so large was it that the integument of the penis was involved in the covering of the hernia, and the only trace of the organ visible was a deeply umbilicated dimple over the hernial swelling.

The neck of the hernia pushed the bladder over to the left side of the mesial line, and it was here, just above the pubes, that I punctured the viscous, and immediately introducing a gum elastic catheter through the trocar, I tied it into the bladder.

The following account of his condition was kindly furnished me by Mr. Cripps, February 28, 1880, just two years and a month after my operation.

"I have much pleasure in giving you what information I can about Mr. _____. I called on him yesterday, and he was out walking about the town. To-day he is as well as possible. He makes water about four times in the day and three times in the night. The bladder retains its power perfectly, and the water is evacuated with a good rush from the supra-pubic opening; and

whenever he micturates, about one ounce of water passes by the penis, or rather out of the small dimple on the scrotum where the penis ought to be. You must remember that the condition of this case would now be much more favourable were it not for his enormous scrotal hernia, which has increased in size, so that I am sure I do not exaggerate when I say that two-thirds of the contents of the abdomen are in his scrotum. This causes great irregularity of the bowels, and obliges him to strain a good deal."

Shortly after I punctured the bladder I procured for the patient's permanent use a curved silver tube with a gutta-percha shield and a tap attached, to wear in the supra-pubic puncture. It was attached by an elastic band passing round the belly, and was somewhat of the shape of a tracheotomy tube.

Mr. Cripps says that has answered very well, and he wears it now; but the elastic band has been found unsuitable, and the shield has been kept in place by two slips of plaster, which have the desired effect. Mr. Cripps also informs me the vulcanite plate was made somewhat concave on its under surface to fit the curve of the abdomen, and this allowed the urine to leak out under the concavity. The plate was, therefore, made flat, so as to press rather firmly on the margins of the puncture, which was just what was required.

After a time it was found that the stopcock became worn with the action of the urine and would not hold water. In place of this, a small piece of india-rubber tubing has been passed over the outside pipe close to its exit from the vulcanite plate; this the patient keeps closed with a wooden plug which he removes at will. This arrangement takes up no room and makes no projection inside his trousers.

November 1881, nearly four years after the puncture, he is alive and well, passing his water over the pubes.

CASE II.

October 22, 1878, I saw, with Mr. Power of Brixton, a gentleman, aet. 67, who for some years had suffered with symptoms of prostatic enlargement. He was in great distress with retention, and repeated and careful attempts had been made to relieve him by the catheter. The instrument would pass in the direction of the bladder a considerable distance, but it could not be made to enter the bladder by fair means. Later in the day, Mr. Callender saw him with me, and after ineffectual efforts to pass an instrument without using force, I punctured the bladder over the pubes, and then and there passed a No. 9 elastic catheter through the cannula, and fastened it in the bladder, withdrawing the can-

nula. Four days later a No. 10 india-rubber instrument could easily be passed through the penis. And on October 31 he was able to go downstairs and to pass his own instrument through the urethra.

This gentleman was gouty; he suffered from heart disease and asthma; and during his convalescence many troubles had to be met. He was attacked in turn by profuse haemorrhage, by inflammation and suppuration of the prostate, by severe gouty urethritis and cystitis, in addition to his cardiac and pulmonary affections.

After a time he discontinued to use the supra-pubic catheter, drawing off all his water by an india-rubber instrument through the urethra.

Two years and four months after the puncture he passed all his water through the catheter. The supra-pubic opening has been for some time closed. His urine was nearly clear, his general health good. He could pass water *per penem*, but since in this way he could not empty his bladder, he was advised always to use his catheter.

He died in November 1880, with suppression of urine after an attack of retention, which had been relieved with the soft rubber catheter.

CASE III.

September 14, 1872, I saw, with Dr. Matthews of Islington, a gentleman between 60 and 70 years of age, with an old history of prostatic obstruction. He had in former times been under Sir B. Brodie's care, and was said to have been tunnelled by him with a prostatic catheter. He was suffering from enlarged prostate, with incomplete retention of urine. His urine was albuminous, and was only passed in small quantities with great difficulty, and this difficulty increased until he could pass none at all. Being unable to introduce a catheter by fair means, on November 24, 1872, I punctured his bladder over the pubes, and at once introduced an elastic catheter. This gentleman died away from home, more than three years after my operation, of some sudden cerebral attack unconnected with his bladder. Dr. Matthews kindly furnished me with the following particulars.

He retained the highest sense of comfort from his supra-pubic puncture, and would on no account allow the catheter to be withdrawn. To the time of his death he always wore either a silver tube and stopcock or an india-rubber catheter. He changed it once in four days, and then washed his bladder out. He could hold his water four hours, and micturated by withdrawing a conical peg from the end of his india-rubber catheter, which was ordinarily fastened up to a belt round his waist. He actively followed his profession, that of a solicitor in large practice. It is also certain

that he resumed his marital duties. The albumen disappeared from his urine, and his general health improved greatly after the puncture.

CASE IV.

On April 22, 1877, I saw a patient of Dr. Cottew's, æt. 74, a vigorous old man, who for some time had been accustomed to use a catheter for prostatic troubles. At the time I saw him he was suffering from retention, and had made more than one false passage in his attempts to relieve himself, and had drawn a good deal of blood. The retention had lasted thirty-six hours. After an hour spent in vainly endeavouring to enter the bladder by the urethra, I punctured the bladder over the pubes, and next morning introduced, in place of his cannula, a gum elastic catheter. I never saw him again, and I am indebted to Dr. Cottew for the following particulars.

He left the neighbourhood three months after the tapping, but before that time he had got into a very comfortable condition, the urine passing through the urethra freely and without any inconvenience. He ceased to wear the catheter in the supra-pubic opening, but either every day or every other day he inserted it for the purpose of preventing the opening closing, so that in the event of his being in trouble again with retention he might have a "safety valve." When his medical man last heard from him he said the air of the seaside was agreeing remarkably well with him, so that one may suppose his general health and strength were good.

CASE V.

In 1873 I saw a patient of Mr. Gibson's, over 80 years of age, suffering from enlarged prostate with retention. I failed to pass an instrument, and punctured over the pubes. Two days later the catheter became displaced, and as there was difficulty in replacing it, Mr. Gibson suggested the trial of an instrument by the urethra. It passed without difficulty; the supra-pubic opening was allowed to close, and the urinary difficulty was treated *per viam naturalem*.

Three years after the tapping Mr. Gibson reported: "The old man is still alive, and, I believe, pretty well. About ten days ago I was urgently requested to see him. I was able to pass a catheter for him readily and easily. I have reason to know that no difficulty has since arisen. Since the puncture to which you allude he has had some vesical trouble, but on the whole has jogged on wonderfully well, and I have heard nothing of him for months together."

CASE VI.

April 12, 1876, Rahere Ward. C. G., æt. 86, cabinetmaker.

Some years in the habit of passing an instrument for himself. Two years ago had retention, which was relieved by a catheter. On the present occasion he has not passed water for more than twenty-four hours. The bladder reaches nearly to the umbilicus. His prostate is greatly enlarged.

Yesterday several attempts were made with various instruments to draw off the water without success. At 2 P.M., after twenty-four hours complete retention, Mr. Smith tapped the bladder over the pubes, first puncturing the skin with a lancet. Through the cannula a No. 5 gum elastic was passed, and the cannula being withdrawn, the catheter was tied in.

During the subsequent night a little urine escaped involuntarily *per urethram*. Discharged April 29, passing a catheter for himself.

Four years later he was admitted under my care in Henry Ward, he being then 90 years of age and in good health. He was suffering from retention, which was easily relieved by a full-sized flexible catheter. This instrument he continued to use for himself for the following week, when, being at the time apparently in good health and about the ward, he called the nurse and said he was going to die. Death took place an hour later.

A post-mortem disclosed general enlargement of the prostate, a hypertrophied bladder, healthy kidneys, and a softened and fatty heart.

CASE VII.

J. C., æt. 60, was admitted into Henry Ward, November 30, 1875.

For the last six months has been unable to do any work from prostatic troubles; has been dependent upon a surgeon for ability to get rid of his water by means of the catheter. He could no longer afford treatment. When admitted, the bladder was full to the umbilicus, urine was dribbling through the penis, and owing to the enormous distension a catheter could not be passed by legitimate means.

The prostate was greatly enlarged as felt in the rectum. The bladder was tapped over the pubes, and a soft elastic catheter being passed through the cannula, the latter was withdrawn.

December 13.—The end of the catheter broke off on removing it, and remained deep in the wound or in the bladder. The punc-

ture was, therefore, dilated with laminaria tents and the missing piece of catheter was extracted. It was found that when the bladder was distended no instrument could be passed through the urethra, but that so soon as the water was drawn off from above the pubes a catheter could at once be passed.

December 27.—He was up and about the ward wearing a flexible catheter in the supra-pubic opening.

A week later he left the Hospital.

November 22, 1876.—A year after the tapping, he presented himself wearing a No. 9 india-rubber catheter, which he removed and cleansed every day. He still suffered from over-frequent desire to pass water, but was in other respects doing well. I have lost sight of him since this date.

From what occurred in the foregoing and other similar cases of prostatic retention; it is certain that the inability to pass a catheter is sometimes due to the over-distension of the bladder; and I have on several occasions been able to pass a full-sized instrument *per urethram*, so soon as the bladder was relieved by tapping. This consideration seems to me one of the principal reasons in favour of the use of the aspirator; and though in general it may be considered as only a temporary resource, yet in the following and other cases I have established a permanent and full-sized supra-pubic opening after using a small aspirator trocar.

CASE VIII.

P. M., æt. 72, was admitted into Henry Ward on August 1874, suffering from prostatic retention. An instrument had been passed which drew off blood and no water. The prostate could be felt much enlarged through the rectum. The house-surgeon succeeded in passing a very small instrument, and for a day or two he was relieved of his urine with great difficulty and uncertainty.

On September 3, I punctured over the pubes with an aspirator trocar, about the size of an ordinary hydrocele trocar. It was left in two days. A catgut bougie was then passed through the cannula into the bladder, and the cannula was withdrawn. Over the catgut a gum elastic, with an eye at the point, was slipped into the bladder, and the catgut was withdrawn. Some days later this was changed for a much larger india-rubber catheter.

October 26.—The catheter is taken out and cleansed every day. He passes all his urine through it and a quantity of pus, but his general condition is improving.

November 18.—Much better; can manage the instrument for himself. Was discharged at his own request.

CASE IX.

W. O., æt. 72, was admitted into Henry Ward, July 15, 1880, under Mr. Marsh's care. For six years the patient had had urinary troubles, and for five days complete retention. A medical man had drawn off blood, but no water.

The bladder was greatly distended; tongue was dry. As the strength was failing and a catheter could not be passed, Mr. Marsh tapped the bladder over the pubes. Six pints of healthy urine were drawn off. He passed a good night, and next day he was cheerful and free from pain. He was fitted, after a time, with a gum elastic catheter, having a rubber collar and tapes to fasten round the abdomen.

September 7.—He left the Hospital wearing his catheter, which he had learned to manage for himself.

In addition to the instances here recorded, I have on other occasions punctured the bladder over the pubes for prostatic retention; and though I have no record of the cases, my personal experience of the operation has been favourable.

I have at the Great Ormond Street Hospital on three occasions punctured the bladder for retention in children, caused by tumours pressing upon the neck of the bladder, with a favourable result as far as regards the immediate and subsequent relief of the retention was concerned.

I have employed the operation but once for retention the result of stricture. This was in the case of a man æt. 57, who had taken cold from exposure to the weather. Two days after the puncture he developed symptoms of acute pneumonia, from which he died in less than a week. During his illness no trouble arose connected with the puncture, and no signs of any local mischief or peritonitis.

Perhaps I may be pardoned for a few words on the method of performing the operation. The question of supra-pubic puncture can only be entertained when the bladder is distended so as to project above the pubes. In the case of corpulent patients, a puncture through the skin with the point of a sharp knife facilitates the entrance of the trocar, but it is by no means necessary even in fat subjects, nor advisable in those who are thin.

Anæsthetic is not necessary unless the patient has a decided wish for one. The relief from suffering is so immediate that the momentary pain of the puncture is forgotten in the overwhelming sense of relief.

It is advisable while the urine is in full flow, and very soon

after the puncture, to introduce a gum elastic catheter through the cannula into the bladder, and to remove the cannula at once. The catheter should have a terminal orifice as well as a lateral eye, so that when a larger instrument has to be introduced, a stilette can be passed into the bladder through the catheter, and this will serve as a sure guide for the introduction of the fresh instrument.

At the time of the puncture the catheter is best secured by strong threads to a broad belt of strapping, and best plugged with a piece of wood. Later on a linen belt may be worn. After a time a patient of ordinary intelligence will learn how to manage his own affairs in these and in other respects. A red rubber catheter is very suitable in some cases for permanent use. It should be introduced stretched out on a strong stilette, which, on withdrawal, will allow the catheter to resume its proper dimensions, and securely to plug the cutaneous orifice of the wound, so as to make it watertight.

In a chronic case, should the urine leak by the side of the tube, the withdrawal of the latter for a few hours will allow of sufficient contraction in the wound to remedy the defect. For permanent wear there should be fitted to the tube or catheter a shield of soft rubber, vulcanite, or metal, which may be attached by a belt or plaster to the abdomen. The patient should remove and clean the tube from time to time at regular intervals.

REPORT ON HÆMOPHILIA, WITH A NOTE ON THE HEREDITARY DESCENT OF COLOUR-BLINDNESS.

BY

J. WICKHAM LEGG.

With the beginning of 1882 ten years will have passed by since my "Treatise on Hæmophilia" was brought out. It may be not inconvenient at such a time to review what has been done in the increase of our acquaintance with the natural history of this important constitutional disorder.

The word hæmophilia is both barbarous and stupid, but it is useful as a name to a disease which must be spoken of. We have an excellent word, "bleeder," as a name for the patients afflicted with this disease. It is formed in accordance with the rules of grammar, and is good English. But I would still venture to remind Sir W. Mac Cormac that "bleeder" is only a name for the patient, and that this cannot be used on all occasions. It would be impossible to make a diagnosis of "bleeder," or to head the board with this word; so that if Sir W. Mac Cormac be dissatisfied with "hæmophilia," he ought to bring forward a word of his own devising. I confess I shrank from such a responsibility, even when confronted with a noun like hæmophilia, after it had been so generally received into the medical literature of both Germany and France.

It is a pity that one is obliged to notice, in some French and even German writings, the use of the word hæmophilia when only a temporary hæmorrhagic diathesis is spoken of. The word should be restricted to the hereditary congenital disease, and never used for purpura, leucæmia, or the non-hereditary hæmorrhagic diatheses seen in young children and in women.

History.—I am still unable to bring forward any case from the Greek or Roman writers. The passage from Lucan, which I chose for my motto ten years ago, remains the only possible case that I can find; and I fancy his description of the effects of the bite of the hæmorrhoid must have been taken from some patient whom he had seen dying of one of the hæmorrhagic forms of the acute specific diseases:—

“ Sic omnia membra
Emiserunt simul rutilatum sanguine virus :
Sanguis erant lacrimæ : quaecumque foramina novit
Humor ab his largus manat crux :
Ora redundant et patules nares : sudor rubet : omnia plenis
Membra fluunt venis : totum est pro vulnere corpus.”¹

Neither is further information to be had about the only Arabic writer on hæmophilia. The Bodleian at Oxford is well known to be rich in Oriental manuscripts, and Dr. Adolf Neubauer, one of the librarians, was so very kind as to undertake a search for a manuscript corresponding to the “Liber theoricas necnon practicæ Alsaharavii,” but he found none in either the Arabic or the Hebrew MSS.; and Dr. Rost, of the India Office, also in the same kind manner searched amongst the MSS. under his care, but with a like result; and Mr. Bradshaw, whose courtesy and industry never failed a visitor, has not yet found anything for me in the University Library at Cambridge.

I wish again to remark that this “*versio pessima*” of Albucasis is not by Paul Ricius, as the modern Germans assert, but by Sigismund Grimm. Paul Ricius wrote only the commendatory letter prefixed to the work in praise of Alsaharavius.

I have said that some had thought that Charles IX. of France was the subject of hæmophilia. In the account of his examination after death given by Bonetus,² there is nothing to suggest such an idea, but rather that the cause of his death was phthisis.

Some time ago I noticed a case in Bateman which may be one of hæmophilia, but described as purpura, in a boy who was employed for several years by the players at golf to carry their sticks, and whose skin was constantly covered with petechiae, and exhibited vibices and purple blotches whenever he received the slightest blow; yet he was in other respects in good health. At length a profuse hæmorrhage took place from his lungs, which occasioned his death.³

Some years ago Dr. Norman Moore was good enough to point out to me the seventy-eighth chapter of Heberden’s “Commen-

¹ Lucani, *Pharsalia*, lib. ix. v. 807.

² Bonetus, *Sepulchretum*, lib. ii., sec. ii., obs. ii., Lugd. 1700, t. i. p. 579.

³ Bateman, *A Practical Synopsis of Cutaneous Diseases*, Lond. 1813, p. 107.



GENEALOGICAL TREE OF A BLEEDER FAMILY,

COMMUNICATED THROUGH MR. W. B. RIGBY.

CLITHEROW OF PRESCOT, LANCASHIRE.

TWO SONS,
*died of
hemorrhage*

WILLIAM,
died January 1770 of bowel hemorrhage, married widow, name unknown.

SON,
not a bleeder:

DAUGHTER,
not a bleeder.

ELIZABETH.

born 1763; married PENDLEBURY.

YEST 2 DAUGHTERS.

not bleeders.

taries," which treats of the "purple spots," and which contains a description of the sufferings of two boys from ecchymosis, joint-swellings, hæmaturia, and the like. I thought at one time that Heberden was speaking of hæmophilia, but it seems to me now quite possible that a temporary hæmorrhagic diathesis only may have been described.

Aetiology.—There can be no doubt of the truth of the rule that hæmophilia attacks the boys of a family and leaves the girls exempt. I do not think I have ever seen a marked tendency to hæmorrhage in a woman belonging to a bleeder family. Bleedings from the nose in girls I have seen, but nothing to justify my classing the patient in any degree of hæmophilia. Chronic hæmorrhagic diatheses are not uncommon amongst women, but these must be distinguished from the true congenital and hereditary hæmophilia, as I pointed out in the tenth chapter of my work.

But if the boys suffer and the girls in a bleeder family escape, it is the girls who carry on the disease. Apparently healthy themselves, they bear sons who are the subjects of the disease. When bleeders themselves beget children, the disease rarely shows itself in their immediate offspring, though Sir W. Mac Cormac and Cantani have lately recorded cases of the direct transmission of the disease from father to son in three generations. What more commonly happens is this: the children of a bleeder all appear healthy, both boys and girls, but the girls bear families in which the boys are bleeders. This is well seen in the accompanying tree, the materials for which were gathered for me by Mr. W. B. Rigby, and I have added some details myself from the Church Registers at Prescot. It will be noticed that none of the children of William Clitherow were bleeders; but the disease appeared in his grandson by his daughter Elizabeth; and the disease was again carried on for several generations by his granddaughter, Ellen Bury, the child of the same daughter Elizabeth. Other daughters seem not to have carried the disease. The tree also shows the remarkable fertility of these bleeder families.

This method of progression through the daughters, while the boys only are affected with the disease, was at one time thought peculiar to hæmophilia, but it is now known to be common to it with several other diseases, which likewise appear to be congenital. For example, the pseudo-hypertrophic paralysis of Duchenne is known to be propagated in the same way. Dr. Gee has recorded the history of an unquenchable thirst, which appeared at birth, a polydipsia, or *diabetes insipidus*, which descended in a family through four generations in this fashion. The great-grandfather suffered from thirst all his life, and had a brother afflicted in like manner. To the great-grandfather were born two daughters, of whom one

inherited the father's complaint, the other did not; the daughter, free from the disease, transmitted it to a son, and the daughter who had the disease transmitted it through her daughters, free from the disease, to her grandsons.¹

A very striking example of the same mode of hereditary descent as there is in hæmophilia may be seen in the accompanying tree of a colour-blind family, of which knowledge has been brought to me from two or three sources. For the tree itself I am indebted to Dr. Dobell, in whose possession it has been for some years past, and who has very kindly allowed me to copy it.

It will be seen that the infirmity of colour-blindness, for it can hardly be called a disease, descended just as hæmophilia does; it left the daughters free, some remarkably well able to distinguish all sorts of colours from one another, while the sons of these daughters inherited the disease from their grandfathers.

This tree also shows the importance of carrying on investigations in branches of the family where no hereditary disease has manifested itself for one or two generations, as later on it may make its appearance. And to this point attention should be especially directed when trees of bleeder families come to be made.

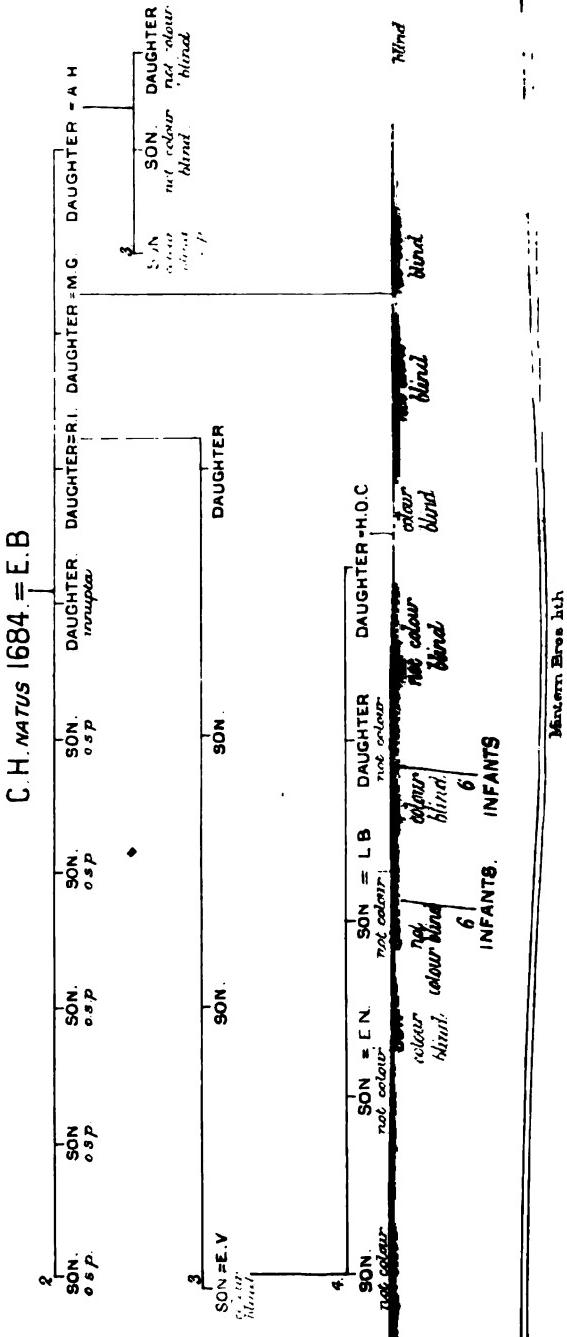
Thinking that some information might be gathered on the spot as to the two bleeder families in the village of Tenna, of which no news had been heard since Vieli, nearly forty years ago, published his account, I undertook a journey last summer through the Swiss canton of Graubuenden. I was fortunate enough to make the acquaintance of Dr. Hoessli of Thusis, who has devoted great labour and patience to the construction of a genealogical tree of these two families from the parish registers. It turns out, as I suspected in 1872, that the two families spring from the same source—one Walther; and Dr. Hoessli has further thrown light upon an important question, whether hæmophilia is conducted by the sons in a bleeder family who are themselves not bleeders.

In the cases that have come under his notice, he has found that the disease did not reappear in the issue of these brothers of bleeders, though when bleeders themselves married, the disease reappeared in the grandsons by the daughters, leaving the sons and daughters free. The grandsons of a bleeder are often more severely affected than the sons in an ordinary bleeder family, but the sons of a bleeder do not transmit the disease if they remain free from the disease themselves, which is usually the case.

At Tenna there is not at this moment a single bleeder. It would seem that the boys have all died, but the girls have unfortunately married and wandered out over the canton, along the



GENEALOGICAL TREE OF A COLOUR- BLIND FAMILY.



valley of the Rhine, to Ilanz, Arazen, and Chur, the head town ; so that more bleeder families may be expected to be founded in all these places.

I see that some contribution to the literature of hæmophilia was published at Cadiz in 1878 by Alcina. Should this prove to be a case of hæmophilia on Spanish soil, it would break the long silence of Spanish writers since the days of Albucasis. In a case which will be recorded immediately, both parents were natives of Ireland, a country thought to be singularly free from hæmophilia.

Symptoms.—I have to thank a large number of friends for the cases which they have sent me, especially my colleagues at St. Bartholomew's, who have nearly all sent me one or more cases, and to Dr. West Walker and Dr. Thomas Barlow for specially interesting cases.

The symptoms of hæmophilia have, however, been nearly worked out, and there is little to add to what has been already said. A case, however, of Mr. Brigstocke's showed such severe symptoms that it deserves to be spoken of more in detail. The boy when born had large extravasations over both shoulders. This is specially interesting, because Virchow states that bleedings may take place during the birth of the child, but a detailed case had not before been published. Also a few days after birth one of the ankles became distended by effusion. When about eight months old he suffered from such profuse epistaxis that it seemed doubtful whether he could survive the loss of so much blood. Very trivial causes produced ecchymoses in this boy ; for example, a short walk would frequently be followed by discolouration of the calves of the legs. This is one of the most severe cases that I have heard of.

Ten years ago I stated that every case recorded of amputation or of ligature of a large artery had been followed by fatal results. Hémard has, however, successfully tied the left common carotid for the bleeding which followed the taking out of a tooth. Dr. Emrys Jones has enucleated an eyeball, while I have even seen a blood tumour opened, and the patient escape with his life, although at one time the bleeding which followed threatened dissolution.

Of death following from trifling causes, the most noteworthy are Dr. Holton's cases. In this family, in which the disease could be traced back for a century, one died from a wound of the tongue caused by a toothpick ; others from injury of the frænum of the tongue, the bite of a rat, a scratch on the forehead, and even from umbilical hæmorrhage at fifteen days old.

When speaking in 1872 of cases of supposed hæmophilia in the lower animals (p. 86 note), I omitted two supposed cases seen at Berlin in 1862. There seems to be no ground for classing these

cases among the congenital hæmorrhagic diatheses rather than with the acquired hæmorrhagic diatheses.¹

Some writers have said that the urea is diminished in hæmophilia. I found in a boy, the subject of this disease, weighing twenty kilogrammes, that the amount of urea varied from twenty to thirteen grammes in the twenty-four hours, a quantity above the average for the boy's weight and age.

Joint-swelling.—Before 1871 it was not certain whether the joint-swelling were due to an extravasation of blood into the joint or not. In this year Poncet described the examination of the joints of a young bleeder. Blood was found in both knees, and the changes in the cartilages, described by Redfern and Charcot, were far advanced. Very like appearances, but in a less degree, were found in all the other joints of the lower extremities. A few years later Sir William Jenner also found blood in the joints of a boy who died under his care at University College Hospital, and in the case shortly to be described the knee and ankle joints contained blood.

At one time it was thought that this swelling of the joints was peculiar to hæmophilia among the hæmorrhagic diatheses, but Scheby-Buch has shown that it may accompany purpura and scurvy, and that the swelling may be caused by serous effusion as well as by blood;² so that Sir William Jenner's opinion that serous effusion may cause the swelling in hæmophilia receives support from the analogy of Scheby-Buch's observations.

Morbid anatomy.—Very recently I have had an opportunity, through the courtesy of Mr. Thomas Smith, of examining the tissues of a bleeder who had died of hæmorrhage. It so chanced that in the month of November last there were three bleeders under treatment at once in St. Bartholomew's Hospital, one for spontaneous hæmorrhage from the bowels, the second from the alveolus of a tooth. The following are the notes of the third case, supplied to me by Mr. Robert W. Quennell, who dressed the case.

Charles S., a delicate-looking boy, 9 years old, was admitted into Rahere Ward, under the care of Mr. Thomas Smith, on the evening of October 11th, bleeding from a small wound on his lower lip. The day before, he was sitting on a doorstep, when a drunken woman fell on him, causing him to bite his lip. As he bled a good deal from the wound, he was taken to King's College Hospital, where it was dressed. As there was no vacant bed, he was sent to this Hospital. There was a small wound on the in-

¹ Gwilt und Hertwig, Magazin f. d. ges. Thierheilkunde, 1862, xxviii. Jahrg., 4 Heft, p. 343, in Canstatt's Jahress. f. 1862, Bd. vi. p. 31.

² Scheby-Buch, Deutsches Archiv f. klin. Med., 1874, Bd. xiv. p. 466.

side of the lower lip and to the left of the middle line. Solid perchloride of iron was at once applied, which stopped the bleeding for an hour or two, but at midnight the bleeding returned, when the perchloride was again applied.

October 12.—At 5 A.M. the bleeding returned; at 11 A.M. the patient was still bleeding.

October 13.—There was a large, black, dry, clot projecting from the left half of the lip; at the left extremity of the clot blood was oozing.

October 14.—As he was bleeding this morning, balsam of Peru was applied to the lip, and afterwards tr. benzoin co. Neither of these drugs having any effect, he was taken at half-past one to the operating theatre, where he was put under chloroform, and the actual cautery was applied after the clot had been removed. A clamp was fixed on at each extremity of the lip to stop if possible some of the circulation. He was ordered sp. terebinth, 3ss. æther. sulph. m. vitell. ovi. aqua pip. 3ss. every four hours. Temperature, 99.2°. Pulse, 135.

October 15.—The bleeding stopped for a short time this morning, and the clamps were removed. As he refused to take the medicine, he was ordered the injection of a double dose every eight hours. Temperature, 100.2°. Pulse, 124.

October 16.—Still bleeding. Bowels open. Temperature, 98.4°. Pulse, 100.

October 17.—Bleeding not yet ceased; he slept fairly well during the night. Takes 3 to 4 pints of milk daily. Temperature, 98.6°. Pulse, very weak and rapid.

October 18.—The bleeding stopped in the night, and the patient feels and seems a good deal better, having taken 3xij milk since 10 o'clock last night. Temperature, 100°. Pulse, 116.

October 19.—Had a quiet night. Has taken very little food during the last twelve hours. Only a very little blood oozes from the lip. Bowels open. Temperature, 99°. Pulse, 120.

From this time up to the day of his death, 26th October, at half-past 6 A.M., the patient was kept alive by nutrient enemata of milk, beef-tea, and eggs. He gradually became weaker, and was slightly delirious the day before he died. His temperature was comparatively low, being generally about 98°, and his pulse was weak, and sometimes almost imperceptible.

The parents of this patient are both healthy, the father being a native of Tralee, and the mother of Charleville, co. Cork. There is no history of bleeding on the father's side, and the mother knows of none among the older members of her family. She has had eight children, and five are living. She had one miscarriage. One of her children, a boy of four, died twelve months ago in

Lawrence Ward, having met with an accident three days before, a plank of wood falling on his back. He was subject to bleeding from the nose, lasting sometimes two or three days, and on one occasion he bled on and off for three weeks, being then a patient of King's College Hospital. The mother states that Charles was also subject to bleeding from the nose, often for two days without ceasing, and that he bled very much from any small wound, such as a cut finger. When one year and nine months old, this boy suffered from a swollen right knee, and was taken to Charing Cross Hospital. He was treated there five months. The knee was more or less swollen from that time till now. When three years old, he fell down and cut his lip, and was taken to King's College Hospital on account of the bleeding. He was there about a month. When he had only been discharged six months he fell down again and cut his lip, and was taken to the same Hospital, where he stayed a fortnight. On arriving at the age of six years, his ankle suddenly became swollen, and he was again taken to King's College Hospital, where an incision was made into it, and the bleeding from the wound could not be stopped for a week. Two years ago he was in Pitcairn Ward under the name of Sutton. Eighteen months ago he was in Darker Ward with an injury to his ankle, and twelve months since he was in Colston Ward, having cut the top of one of his thumbs almost off, the haemorrhage from which could not be checked for fourteen days. The scar remained to his death. The mother has a third son, aged 3½ years, who does not bleed.

Examination forty-five hours after death by Mr. Macready.—
Rigor mortis fairly well marked.

Large ecchymoses on thighs and legs.

Body not so exsanguine as might be expected.

There is a cheesy gland in front of larynx.

Thymus gland persistent.

Pleurae natural.

Lungs healthy, together weighing 13 oz.

Blood watery; no clot found on opening inferior vena cava, only fluid blood escaping; but on examining further a loose clot is seen in all chambers.

Left ventricle shows well-marked mottling; right less.

Valves natural.

Liver fatty; weight, 26 oz.

Gall-bladder distended, containing a thick slate-coloured liquid.

Kidneys pale, but otherwise healthy; weight together, 5 oz.

Spleen, pulp, and follicles natural; weight, not quite an ounce.

Aorta natural.

For the following description of the joints I am indebted to Mr. Macready.

Much extravasated blood in the right popliteal space, which even invaded the substance of the muscles bounding the space.

The knee was slightly flexed. The patella was fixed to the front of the femur by an adhesion that was broken without difficulty. A superficial gap was then seen in the cartilage on the femur where the patella had been fixed to it. The cartilage on the patella had been absorbed, and fibrous tissue occupied its place.

The synovial membrane was stained of a yellow-brown colour. The ends of the bones at the knee, where not covered by cartilage, were coloured in like manner. The cartilage preserved its usual appearance. A similar condition was found in the left ankle-joint, but there was no erosion of the cartilages. There was very slight staining also of the right ankle. The other joints were natural.

I examined the same evening under the microscope the heart fibres from the right and left ventricles. Both sides of the heart showed the same fatty degeneration, that is, the fibres contained a large number of granules, which in many cases became almost as large as a red corpuscle. In some few cases the fibres still showed traces of striation, and this was most marked in the fibres from the right ventricle.

The greater number of the liver cells were filled with large drops which showed a double outline; some few cells showed a nucleus still visible, and a few granular contents. In general the large fat drops predominated.

As soon as the boy's death was announced to me, that is, nine hours afterwards, I removed, with Mr. Herringham's assistance, portions of the mucous membrane of the mouth, the prepuce, and of the skin between the toes. The portions of tissue were at once put into Müller's fluid and there kept till November 12, on which day they were removed to spirit. Sections were made on November 21, stained with logwood and mounted in Canada balsam.

The sections of the mucous membrane of the lower lip showed abundance of glandular structure, with plenty of small cell infiltration around the ducts, probably due to the therapeutic measures employed to stop the bleeding. The vessels, both arteries and veins, appeared natural. The same may be said of the vessels of the prepuce and of the skin of the toe. The aorta, which was not put into Müller's fluid until nearly fifty hours after death, did not, of course, make so good a preparation as the foregoing, but still no disease could be detected in its coats or in the *vasa vasorum*. The specimens were examined by several histologists, amongst

whom was Dr. Percy Kidd, but they failed to recognise the changes which were seen in Dr. Kidd's case, and they were unanimous in their belief that no changes could be detected.

A few years ago Dr. Percy Kidd examined the buccal mucous membrane, the aorta, and vena cava of a bleeder aged 6, who had also died of a bleeding from the mucous membrane of the mouth. The buccal epithelium was in certain places somewhat less thick than natural and indistinct, the outline of the cells being invisible and no nuclei apparent. This altered layer was also quite unaffected by any staining reagents. This state of affairs, however, Dr. Kidd himself does not make of much importance; but the state of the vessels underneath the mucous membrane is worthy of attention. The endothelial cells lining the small arteries, capillaries, and veins had undergone great proliferation, especially in the small veins, where the overgrowth was sometimes so great as to block the vessel. The *vasa vasorum* of the aorta and vena cava showed the same endothelial proliferation.

Dr. Kidd also noticed in the muscular coat of the arteries a peculiar appearance. There was hardly any distinct muscular element, but the coats were composed of an indistinct slightly opaque tissue without any definite structure. This change Dr. Kidd calls a "hydropic degeneration of the muscle fibres."

There have been examinations of the vessels made, which support both Dr. Kidd's and my own observations. Buhl, in Lindwurm's case,¹ found a considerable increase in the number of nuclei around the vessels without any other particular change. Normal vessels under the skin ought to show one or two nuclei; those of the bleeder showed three to five. Bodies which gave a blue reaction with iodine and sulphuric acid were also seen in the papillæ of the skin; but it should be likewise noted that the patient was suffering from ichthyosis and lichen ruber.

Virchow found no changes in the smaller arteries and capillaries which he examined,² nor could Morel in Gavoy's case.³ The appearance of a fatty infiltration or degeneration of the organs I think of no importance; such is not uncommonly seen after any prolonged or severe loss of blood, and is common to haemophilia with the other haemorrhagic diatheses.

It is well known that at Prague every disease is thought to be caused by some special germ, and we thus have such expressions as *monas haemorrhagicum*, the monad which causes bleedings and

¹ Lindwurm, *Zeitschrift f. rat. Medicin*, 1862, Bd. xiv. p. 263.

² Lemp, *De Haemophilia Nonnulla*, Diss. Inaug. Med. Berol., 1857, p. 22.

³ Gavoy, *L'Hémophilie ou Diathèse Hémorragique*, Thèse de Strasbourg, 1861. Quoted by De Fleury, *Mém. de la Soc. Méd. Chir. de Bordeaux*, 1866, t. i. p. 305.

the like. It will therefore surprise no one to find that Ceci thinks he has discovered, in a case of hæmorrhagic smallpox, a parasite which will cause an acute hæmorrhagic diathesis.¹ He finds no changes in the blood-vessels. Prussak's experiments on the hæmorrhages *per diapedesin* which follow the injection of chloride of sodium may also be kept in mind.² I have myself repeated Prussak's experiments in the frog with chloride of sodium, but found no hæmorrhages to follow the use of iodide or bromide of potassium, or any other halogenous salt, but chloride of sodium.

Treatment.—Very little has been done in this direction. Dr. Harkin, indeed, strongly recommends the chlorate of potash in all hæmorrhagic diatheses, hæmophilia included; but it may be noted that in most of Dr. Harkin's cases the use of the perchloride of iron was added to that of the chlorate of potash.

Cantani recommends the *penghawar Djambi*. This remedy appears to have been used at the end of a hæmorrhage after many styptics had failed, and when the patient was exsanguine; that is, just at the time when the hæmorrhage might be expected to stop of itself.

I still think that one of the most satisfactory ways of treating the bleedings is to leave them to themselves. After they have lasted some days, and the patient is blanched and exsanguine, they cease; and I cannot say I have ever seen any good to the patient follow such remedies as the hot iron or milder styptics. Transfusion I still think the proper step when dissolution is threatened from loss of blood.

HÆMORRHAGIC DIATHESIS IN INFANTS.

A hæmorrhagic diathesis is not very uncommonly seen in infants, and it has been made a special study by Ritter,³ and by Alois Epstein,⁴ as well as by a French observer, Ribemont,⁵ and by Eppinger,⁶ who, of course, thinks the hæmorrhages due to the presence of a parasite.

The following details of fatal hæmorrhage in an infant have been kindly given to me by Sir James Paget, to whom they were communicated by Mr. R. T. Wylde. The case occurred in the

¹ Ceci, Archiv f. exp. Pathologie, 1881, Bd. xiii. p. 641.

² Prussak, Sitzungsab. der Math. naturwiss. Classe der kaiserlich. Akad. der Wissenschaften, Wien, 1867, Bd. lvi. Abth. ii. p. 13.

³ Ritter, Oesterreichisches Jahrbuch f. Pädiatrik, Wien, 1871, Bd. i. p. 127.

⁴ Alois Epstein, ibid. VII. Jahrg. 1876, Wien, 1877, p. 119; also Schmidt's Jahrb. Bd. clxxv. 1877, p. 157.

⁵ Ribemont, Des Hémorragies chez le Nouveau-né, Thèse pour l'agrégation, Paris, 1880.

⁶ Eppinger, Jahresbericht f. d. ges. Med. f. 1878, Bd. ii. p. 626.

practice of Dr. Shand of Port Elliot, South Australia, and is thus described by him :—

" A. M. H., the first child of her mother, whose age is 23, was born at full period, and was partially fed by hand, considered feeble, and was never seen by a medical man. Was fair, and skin very white. She was vaccinated at the age of three months. When seen on the eighth day after vaccination, the three marks appeared raw, and blood was oozing from them. I censured the mother for neglect, in allowing the arm to be scratched. She denied that it had met with any violence, and stated that it was quite right until the previous morning, when it looked as at present, that is, the arm had taken. I told her to keep wet rags, and use some pressure over the marks. On the afternoon of the tenth day after vaccination the mother waited upon me with the child, and stated that since I had seen her the arm had continued to bleed, and had soaked wrapping after wrapping. She now recollects that the arm had been roughly handled in the morning of the seventh day. The three marks looked very raw, and when the blood was dried up it slowly oozed forth, coming more rapidly when the child moved her arm or cried. I applied diluted liq. ferr. perchlor. to the bleeding surface, and retained the child in my consulting-room for an hour. Finally, I had to apply nitrate of silver to the raised circumference of the marks, covered the surface with lint soaked in diluted liq. ferr. perchlor., applied pressure, and dismissed the mother with lint and perchloride, which she had orders to use if the bleeding continued. I prescribed tincture of the perchloride internally in two-minim doses. Next morning I was informed that the child had been found dead at 4 A.M., and that the oozing had continued since her visit to me.

" I ascertained that the child had never been scratched, and that no bleeding had ever taken place from her body. The mother stated that when I vaccinated the child the smallest trace of blood appeared."

It cannot be thought this is a case of ordinary hæmophilia; the sex forbids such an idea. We know also that in hæmophilia vaccination runs an eminently favourable course. It was proposed by Rieken to vaccinate bleeding points, and thus stop the bleeding.¹ Dr. Hoessli informed me last summer that no accident had for many years attended the vaccination in the canton of Graubuenden, where, as is well known, there are so many bleeder families.

¹ Rieken, Neue Untersuchungen in Betreff der erblichen Neigung zu tödtlichen Blutungen, Frankfurt a. M. 1829, p. 116.

CHRONIC HÆMORRHAGIC DIATHESSES IN WOMEN.

There have been published since 1871 several scattered cases of chronic non-congenital hæmorrhagic diatheses in women, but I am acquainted with only two monographs, that of Kehrer¹ and that of Börner.² The very title of Kehrer's work shows that he does not separate hæmophilia from a chronic hæmorrhagic diathesis. I would again insist on the importance of severing the women in bleeder families who are subject to bleedings from those women whose male kindred show no signs of bleeding, but who have acquired at some time in life, say puberty, a hæmorrhagic diathesis. I should not give the name of hæmophilia, for instance, to the case which follows later on, in which the mother of the patient lost much blood, but whose children did not suffer. More doubtful is the case published by Börner, which is of very considerable interest. The patient at the time of observation was 52 years old, and had suffered from hæmorrhages since the age of 18. The introduction of the speculum, the passing of the probe into the lachrymal duct, were followed by long-continued bleedings, and each of the seven deliveries of the patient was followed by a long-continued flooding, which seems to have averaged about two months in duration. Of the children, the first four were sons; the third was healthy, but the other three suffered from epistaxis, bleedings from the gums, and similar hæmorrhages. The fourth son seemed to have suffered from well-marked hæmophilia, hæmorrhages being excited by very trivial causes. Of the three girls, two, the younger ones, suffered from bleedings.

It does not appear that any of the patient's kindred in the ascending line, or any of her cousins, suffered from bleeding, though the family history is somewhat imperfect on this heading. I do not think that an exactly similar case as regards the origin and transmission of a hæmorrhagic diathesis has before been published. Had the woman been born in a bleeder family, there would have been no hesitation about the diagnosis, and the disease in her would have been called hæmophilia; and even with the evidence before us, I think that this name must be allowed, because the patient transmitted the disease to her sons. In the case of my own, which I am now about to print, in addition to those which I published in the "Medical Times and Gazette" for 1871, vol. ii. p. 672, I refused the name of hæmophilia from the absence

¹ Kehrer, Archiv f. Gynäkologie, 1876, Bd. x. p. 201. Die Hämophilie beim weiblichen Geschlechte.

² Börner, Wiener med. Wochenschrift, 1878, p. 892. Ueber Bluterkrankheit in ihrer Bedeutung f. d. Gynäkologie.

of evidence of a disposition to bleed in the male kindred, and from the absence of the disposition in the sons.

This case is one which was under my care last summer at St. Bartholomew's.

M. D., aged 30, admitted into Mary's Ward on July 26, 1881, suffering from epistaxis.

She said she had been subject to epistaxis since she was fourteen years old, but had had no great difficulty in stopping it until the present attack.

She is married and has had three children, the youngest five months old. During pregnancy the epistaxis is more profuse, and after each confinement there has always been severe flooding. Menstruation is also profuse, and continues for more than a week. She began to wean her baby yesterday.

She had a tooth taken out two years ago with very little loss of blood. Cuts on the fingers are not troublesome to manage.

Her mother used to lose much blood after delivery and during menstruation, but none other of her kindred is subject to bleedings.

Last night her nose began to bleed, and the anterior nares were plugged at 8 P.M. by a neighbouring medical man. She came to the Hospital about 11 P.M., still swallowing a little blood, and said that she had been bleeding from the left ear as well as from the nose. Pulse, rapid and full, 110. Temperature, 101.6°.

July 27.—Passed a good night. Had no return of the bleeding. She says that she had pains in the left ear last week, and that a discharge began from that ear on the 25th, and since that time the pains have been less. She says also that a very little blood came from the ear last night.

Breath is offensive. There are some petechial spots on abdomen and legs. Pulse, 84, fair volume, regular. No dyspnœa, and there is nothing unnatural in the chest or belly. Temperature, M. 100°, E. 99.2°.

July 30.—There was a very little epistaxis this morning, and a little bleeding from the left ear. No fresh petechiae, and those on legs have disappeared. The gums do not bleed. There are well-marked bruises on the left hip and legs. Temperature, under 100°.

August 5.—A little bleeding from the gums noticed for the first time to-day.

August 10.—There is very little pain now in ear, and no discharge. No further petechiae, and the old ones are fading.

August 12.—The first sound at the apex of heart murmurish.

August 18.—The gums bled a little again last evening. She complains of dizziness in the head.

August 20.—On both legs below knee are seen numbers of petechiae, closely set; there are a few above knees.

August 25.—She left the Hospital and became an out-patient.

In this case the state of the blood did not account for the hæmorrhagic diathesis. The blood, examined twice under the microscope (August 10 and 20), showed no increase of the white corpuscles. There was no enlargement of the spleen or liver, and nothing unnatural could be made out about the heart. After July 27 the temperature never rose above 100°.

BIBLIOGRAPHY OF HÆMOPHILIA.

I give all the fresh cases which have come under my notice during the last ten years. I fear the list is very incomplete. For the bibliography before 1872 I must refer readers to my "Treatise on Hæmophilia."

The references marked with an asterisk are those which I have not myself verified.

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PROCEEDINGS
OF
THE ABERNETHIAN SOCIETY
FOR WINTER SESSION, 1880-81.

October 7.

Dr. Hensley delivered the introductory address.

October 14.

Mr. Herringham read his paper entitled 'A Dresser's Practice,' illustrated by the following tables:—

*An Analysis of nearly 500 Cases, being all those treated as Out-Patients
by one Dresser from May 13 to September 30, 1879.*

Incised Wounds.	Treatment.	Condition on Application at the Hospital.	Results.
Scalp . . . 13	All with water dressing; no sutures.	Nearly all drunk; one done with umbrella.	6 did not return; 7 healed well.
Face—			
Eyebrows 5	Hair sutures in four.	Nearly all drunk.	9 did not return; 1 was for a while erysipelatous, but recovered; 7 healed quickly.
Lips . . 4	Hair sutures in all.		
Other parts 8	3 with carbolic oil. 14 with water dressing.		
Upper limb—			
Fingers . 18	2 with tops nearly off; all with water dressing.	Hardly any drunk; large majority on left side.	I near joint, stiff finger; 1 into joint, no bad result. 8 did not return; 1 got cellulitis of forearm; recov'd. 22 did well.
Hands . 9	1 with carbolic acid.		
Rest . . 4	8 with water dressing. All with water dressing.		I did not return; 6 did well. Crushed toes healed very rapidly.
Lower limb, 7	All with water dressing.	I a wound of the thigh by a butcher's knife.	
Neck : : 1	{ Water dressing.		
Penis : : 1			

ANALYSIS OF CASES—continued.

- Punctured Wounds.*—6, all upper limb. 1 pistol-shot through finger, baring bone, carbolic acid with drainage, speedy recovery. 1 in hand from glandered horse. Same treatment and result. 1 bite of dog. 1 bite of woman.
- Burns.*—4. *Scalds.*—7. 1 on foot. All the rest above waist. 6 did not return. 5 recovered with Carron oil.
- Bruises.*—Head and face, 4. Upper limb, 24. Lower, 11. Chest and back, 11. Genitals, 3.
- Fractures.*—Clavicle, 4. Forearm, 2 (1 greenstick of both bones). 4th metacarpal, 2. Phalanges, 2. Ribs, 5. Nose, 1.
- Dislocations.*—Shoulder, 2. One man had dislocated the right arm twice, left arm thrice; the other had dislocated the right arm eight times. Phalanx, 1.
- Sprained or Bruised Joints.*—Shoulder, 1. Elbow, 3, two of which from lifting weights. Wrist, 4. Fingers, 2. Knee, 8, one in a ballet-girl. Ankle, 6. Treated with splints and lotio plumbi. Results good in one-third of the cases. Bad in 2. The rest did not return.
- Abscesses.*—Mastoid, 1. Dental, 4. Burns of olecranon, 2, from wounds, the suppuration spread down the forearm. In adductors of thigh, 1, from strain. Arm, 1. Hand, 6. Breast, 1.
- Ulcers.*—13. All lower limb, 3 of which syphilitic.
- Boils.*—7. Neck and nates.
- Erysipelas and Cellulitis.*—Head, 4. Upper limb, 15. Lower limb, 4. Body, 2. Contrasted with the ulcers, shown that the lower limb is prone to diseases of malnutrition, the upper to those of active irritation.
- Strains.*—5.
- Skin Diseases.*—Eczema, 19, generally of head; a few of palms. Great variety of forms. Herpes simplex, 9 of penis, 1 of lips; zoster, 2. Lichen, 3. Psoriasis, 2. Impetigo, 3. Acne, 5. Ecthyma, 4. Other forms, 20. Some of the Urticaria cases were chronically recurrent at spring and autumn. Parasites, 21.
- Rectum.*—Haemorrhoids, 4. Fistula, 2. Prolapsus, 1.
- Testes.*—Hydrocoele, 1, congenital. Epididymitis, 2. Orchitis, 3.
- Lymphatics.*—Buboæ, 3, 1 from overwalking. Lymphangitis, 4. Strumous, 2.
- Bursæ.*—Inflammation, 1, patellar. Suppuration, 2, olecranon. 1 on nape of neck in a wine porter.
- Ears.*—Otorrhœa, 3. Mastoid abscess, 1. Cerumen, 3.
- Gonorrhœa.*—52. 6 cases from 6 months to 3½ years. Treated in plethoric cases with H.M.S. c. M.S. and warm water; in weakly cases with tonics. Gleets with green tea, lotio plumbi, or copaiba. *Complications.*—Orchitis, 2. Stricture, 2. Balanitis, 1. Rheumatism, 1. When chronic, very intractable. None satisfactory. Most did not return.
- Chancres.*—10.
- Syphilis.*—Sores, 4. Rashes, 7. Condylomata, 5. Ulcers, 2. Hereditary, 1.

October 21.

Mr. Bowlby exhibited a case of double anterior and posterior ganglion of the wrist.

Mr. Lockwood read his paper on 'Anatomical Nomenclature.'

This paper gave short details of the lives of many men whose names were immortalised in anatomy, Herophilus, Sylvius, Eustachius, Scarpa, Vesalius, Malpighi, Hunter, and others.

He further drew attention to certain anatomical facts hitherto undescribed, among them to 'the small depression upon the temporal bone just above the external auditory meatus, where the pinna of the ear is fastened to the skull by a quantity of strong ligamentous fibres.'

At the lower end of the fibula is a depression which often has a wrong use ascribed to it. It is generally said to give attachment to the posterior fasciculus of the external lateral ligament of the ankle-joint. Last session the author had the honour, he said, 'to show specimens to the Society demonstrating that the depression served for the reception of the ligament during extension of the foot, the ligament itself being attached to the apex of the malleolus.'

October 28.

Mr. S. Paget showed specimens of tumours in wood.
Mr. King read his paper on 'Diagnosis and Treatment.'

November 4.

Mr. C. E. Paget showed a case of iridodonesis with partial dislocation of the lens, more marked on the left side, downwards and inwards. There were traces also of past choroiditis.

Mr. W. H. Cripps introduced the surgical discussion on fractures. He limited the question to fractures of the lower extremity. He spoke of the treatment, first of compound, then of simple fractures of the femur, showing a model of a splint invented by himself; then of fractures at the ankle-joint, and of the patella.

Mr. Heath, Mr. Bruce Clark, Mr. Bowlby, Dr. Spark, Mr. Oscar Clarke, Mr. Nance, and Mr. Ernest Clarke took part in the discussion which followed.

Mr. Cripps replied.

A vote of thanks was unanimously passed to Mr. Cripps, and the meeting adjourned.

November 11.

Mr. E. Clarke showed a Chinese book of surgery.

Mr. C. E. Paget showed two photographs of a girl whose face somewhat resembled a monkey, with the history of a fright to the mother by a monkey when three months pregnant with the child.

Mr. Gill read his paper on 'Adenoid Disease.'

The author, after having alluded to the several instances in which enlargement of the lymphatic glands occurs, referred such enlargements, for the purposes of accuracy and clearness, to three groups :—

I. Enlargement of one or two glands. These are painless, quite movable, and of firm consistency—the lymphomata.

II. Enlargement of the several glands of a particular group. Rapid growth, tendency of glands to become immovably fixed with each other and with deeper structures; painful and becoming softer in places, and almost fluctuating—the lympho-sarcomata.

III. Enlargement of glands in more than one region of the body, followed subsequently by a characteristic change in the components of the blood, the colourless corpuscles becoming greatly increased in number—lymphadenoma or adenoid disease.

Having summed all the arguments in favour of and against this view, viz., that the increase of the lymphadenomatous gland is mainly (if not entirely) due to changes of a chronic inflammatory nature, he proceeded to adduce a new cause for the disease.

He detailed the nature of the circulation of the lymph in the lymphatic spaces and vessels, and then proceeded to show the relation which the state of the blood vascular system has upon this circulation.

The lymph circulation derives a *vis a tergo* from the fluids effused into the cellular interspaces from the arterial capillaries; when this *vis a tergo* is diminished, as in paralysis of the arteries, there is an excess of lymph in the cellular interspaces = lymph spaces, and a diminished force to propel it forward towards the larger lymphatic capillaries. Without there being an actual stagnation of lymph in the lymph spaces, it is quite possible to suppose that the flow of lymph may be so much interfered with that the tension of the lymph in the radicles of the lymphatic system becomes increased, and hence adds a new element in the lymph circulation.

The origin of the disease would, on true principles, be shown to be local at first; it gradually assumes a constitutional or general aspect by implication in succession of several groups of glands; afterwards, from the changes in the blood induced by these glands, the blood becomes abnormal, and the condition of leucocythaemia is added to that of chronic glandular enlargement.

Finally, deposits of adenoid tissue are found in different organs of the body; an attempt, in the author's opinion, on the part of nature to supply a defect in the general system. This, however, can never assume such large proportions as are found in the lymphatic glandular system, but may be sufficient for a while to cause a certain number of colourless corpuscles to undergo such

changes as will eventually lead to their becoming coloured ones. In this way the wants of the economy may be carried on for a short time, but in the end the patient dies from one of the results of anaemia which has been induced by the disease.

The treatment of these cases of adenoid disease is extremely unsatisfactory, nothing as yet seeming to have the slightest effect upon the progress of the disease.

If there is any truth in the above observations, the administration of the Calabar bean, which is said to constrict the small blood-vessels, should be tried, with the view of stimulating the blood-vessels, and so increasing the *vis a tergo* in the lymphatic capillaries.

The author has not had an opportunity of trying the effects of this drug upon lymphadenoma. He believes that it should be given in early enlargements of glands.

November 18.

Mr. Bowlby read his paper on 'Chronic Disease of Joints in Children.'

He objected to the term 'strumous' as applied indiscriminately to all classes of chronic diseases of joints, because it was misleading, and gave the impression that the constitutional tendencies of the patient had a closer connection with the malady than the local conditions of the joint. He stated as his opinion that any joint, however healthy, might become the subject of chronic disease as the result of an injury which was not treated by rest, and that even in strumous children no joint became diseased idiopathically, but always as the result of some injury, however slight. The good results of purely local treatment, such as rest, also argued strongly against the constitutional origin of the disease. He pointed out that the fatal results which so often supervened were chiefly due to either amyloid disease or acute tuberculosis, and argued that by cutting short the disease in its earlier stages the best chance was given to the patient.

The only rational mode of treatment in early stages was by rest, but this ought to be carried out much more thoroughly than was usually the case: *e.g.*, in *morbus coxae* the child should not only be treated by a long splint and weight, but should never be allowed to sit up, for such an action necessitated motion in the diseased articulation, and might perhaps break down the freshly formed adhesions which had taken weeks to form. Rest might usefully be combined with other local treatment, extension, &c., and care taken of the general health. It was a mistake to suppose that the constitution as a rule suffered by the necessary confinement,

for, on the contrary, it generally improved. The difficulty of applying these principles to diseases of the lower extremities to a great extent explained the greater frequency of diseases of the knee, hip, and ankle.

Under the present system of out-patient practice it was impossible to treat such cases satisfactorily, and so long as such was the case a better chance of life was given to those patients by either excision or amputation at an earlier period than was usual. Mr. Bowlby then explained what he considered the indications for excision, and pointed out that caries and even necrosis might exist without any grating in the articulation. Statistics showed that in children death was rarely the result of the operation, and a limb after a successful excision was far more useful than any artificial apparatus. He had seen such good results from the excision of different joints that he was inclined to regard the operation with much more favour than was usually accorded it. The operation differed as applied to the different articulations, but in the lower extremity great care should be taken that the limb was not used too soon.

Excision was a more severe operation than amputation as regards the length of convalescence, and a patient should not be subjected to it unless the constitution was fairly sound and able to sustain prolonged suppuration and confinement; but even after excision had failed amputation might be done, though under less favourable circumstances than if it had been primarily selected.

November 25.

Mr. Heath showed a case of congenital hydrocephalus and malformation of all limbs.

Mr. Lockwood showed an intestine taken from a case in which colotomy had been performed. The cæcum lay beneath the liver; there was no ascending colon, a long diverticulum from the colon and a large mass of cancer surrounding the rectum.

Mr. Coles read his paper on 'Squint.'

December 2.

The medical discussion on coma by the House-Physicians was opened by Mr. H. H. Tooth, who spoke on the definition and etiology of coma. He was followed by Mr. S. Nall on the diagnosis, and by Mr. Cronk on the treatment of cases of coma.

The discussion was continued by Mr. Gill, Mr. King, Mr. Herringham, Dr. Spark, and Mr. E. Clark.

Mr. Tooth replied.

December 9.

Mr. Day read his paper on 'Homœopathy.'

January 20.

Mr. Jessop read his paper on 'Hystero-Epilepsy,' which will be found on p. 177 of the Hospital Reports for the year 1880.

January 27.

Dr. Harris showed specimens of triple staining, and described the method employed.

Mr. E. Clarke read his paper on 'Lead-Poisoning.'

The chief object of the paper was to draw attention to the numerous cases of lead-poisoning by drinking *four-ale*.

In public-houses the beer that remains in the leaden pipes all night is always drawn off into a leaden sink, and passes thence into a vat or leaden tank, into which receptacle also passes all the waste beer of the day, to be pumped up again for the cheap consumer, and sold as four-ale or four-half.

This form of poisoning, of course, only occurs in towns where the pump system is used. Four-ale most contaminated with lead is procured early in the morning.

From among the numerous cases I have met with, I pick out the following interesting ones.

C. W. and R. J., middle-aged working-men, attending the Medical Out-Patient Room. C. W. was suffering from lead-poisoning. R. J. was suffering from bronchitis, and had no sign of symptom of lead-poisoning.

I discovered that both these men attended the same public-house ; but C. W. always had a drink of four-ale on his way to work, about 6 A.M.; whereas R. J. never had a drink till mid-day, by which time all the poisoned ale was probably used up.

Method of testing ale for lead.—Decolorise the sample with charcoal (a slight yellow tinge is always left), filter and acidulate, then pour the solution into two porcelain dishes in equal amount, so that, if any colour remains, there should be the same intensity of colour in each dish. A much better result can be obtained by evaporating the original sample down to a quarter of its original bulk. Now pass sulphuretted hydrogen through one of the solutions for two hours, if possible (the longer the better), after which compare the two solutions. If lead is present, the solution through

which the sulphuretted hydrogen was passed will be of a deeper and browner colour.

I obtained better results from this method than from any other.

February 3.

Medical discussion on the Pulse. Dr. Harris dwelt first on the importance of the pulse in diagnosis and prognosis, aiding us as it does by its frequency, hardness, &c., with other symptoms, to form a diagnosis. He showed, secondly, that it was diagnostic of no one disease though helping in so many. He pointed out, lastly, how little good instruments were in practice for recording differences in the pulse. He did not believe that any sphygmographic tracing was diagnostic of a disease, and considered them only useful where frequently employed.

Mr. Heath thought the pulse much more diagnostic than Dr. Harris, instancing the 'water-hammer' pulse. He put the normal range of the pulse at from 60 to 90, and wished for more information about irregularity.

Mr. Jessop related a case where the pulse was 36 in health, and another of palpitation where it was irregular in volume and frequency.

Mr. King said that the variations of the pulse might be considered together with the different structural lesions of the heart, the diagnosis of which it greatly helped; and that the pulse varies with the nervous state of the body, an important point in the examination of children. He disputed the statement of Dr. Harris that increased frequency alone was not a state of disease, quoting Latham's cases to the contrary.

Mr. Lockwood considered it important to take the pulse on both sides, and to compare the increased frequency of the pulse with a raised temperature in acute diseases, and gave his experience of the great value of the pulse in administering anaesthetics.

Mr. Barrett thought the pulse useful in prescribing, and prophesied the future utility of the sphygmograph.

Mr. E. Clarke believed that the sphygmograph was not enough used, and thought that the pulse should be taken at the same time every day.

Mr. Spark had counted the pulse at 160, and did not think it possible to do so at a much higher rate. He considered a hard pulse to indicate bleeding, and lamented that in England the pulse was not so much studied as on the Continent.

Dr. Coates thought the pulse exceedingly useful in prognosis,

and stated that in convalescence from acute disease it was generally dicrotic; he disbelieved in its importance in the diagnosis of heart disease and in the advantage of the sphygmograph.

Mr. Davis thought that there was no relation between pulse and temperature, and related some aconite experiments.

An unanimous vote of thanks to Dr. Harris was passed, and the meeting adjourned.

February 10.

Mr. Heath showed a case of abortion of a foetus two months old, after operation for removal of a fibroid tumour in which the uterus was lengthened to seven inches, presumably by pressure of the fibroid.

Mr. Hockin showed specimens of pulse tracings to demonstrate the errors which may be made in taking them.

Mr. Hockin read his paper on 'The Radical Cure of Hernia.'

In the first part of this paper the two theories regarding the causes of hernia were dealt with. The author adopted the pathological theory, maintaining that the intestines are not prone to displacements in the normal and healthy condition of the mesenteries and ligaments, and while allowing that protrusion is the result of the mechanical action of the muscular parietes, he held that the intestines do not come within the sphere of that expulsive action until they have descended somewhat in the cavity of the abdomen by the relaxation or hypertrophy of their attaching membranes.

In support of this theory he drew attention to herniae which remained stationary for years till some debilitating disease supervened, when they increased in size very rapidly; to the closed tunica vaginalis being peculiar to man; to a case of patent tunica vaginalis without hernia. Cloquet's theory with regard to inguinal hernia in right-handed people was disproved by facts. The strength and elasticity of the mesentery were illustrated, and several cases were quoted, among them Dupuytren's, where the intestine was not attached to the scar, but was only attached to it by a fibro-cellular cord in bodies examined some years after recovery from an artificial anus caused by a strangulated hernia.

If the pathological theory were right, the operation for radical cure, namely, to obtain adhesions between the walls of the hernial sac or to obliterate the canal, did not seem likely to be successful, since ventral herniae almost always make their way through scar tissue, and herniae have returned through the scar formed by the sloughing of a strangulated hernia.

In the latter part of the paper the various remedies tried were

briefly mentioned, including the actual cautery, caustics, ligature and suture of the sac, Wood's and Dunnett Spanton's operations.

It was pointed out that out of 60 cases published by Wood, only 4 were distinctly recorded as not wearing trusses at the time the book was brought out, while the after-history extends for one year or more in only 8 cases. One of these 8 cases was operated on in 1861, seen cured in 1863, but applied to the Truss Society in 1865 with a rupture on the same side as the operation. The theory of the operation could not be supported nor its principles upheld, and since its success was so small, the practice of it should be abandoned.

February 17.

Mr. S. Paget showed a skull from a subject at Edinburgh, remarkable for the size of the pituitary body, associated with extraordinarily enlarged intestines.

Mr. Square showed a stone taken from a man aged 24, with a history of the affection since 2½ years of age, the stone being externally coated with phosphates.

Mr. Jessop showed Dr. Hensley's apparatus for evacuating and washing out a cavity containing fluid.

Mr. Coates read his paper on 'Empyema.'

February 24.

Mr. Lockwood showed a foreign body in the tunica vaginalis, probably fibrin.

Mr. King showed microscopic specimens of a cerebral tumour.

Mr. Collins read his paper on 'Compulsory Vaccination,' which will be found in full abstract in the number of the 'Student's Journal' which appeared subsequent to March 1, 1881.

The discussion on this paper was concluded at an adjourned meeting on March 1.

Thursday, March 3.

Mr. Bowlby brought forward the House-Surgeons' subject for discussion—stricture of the urethra. After speaking of the seat, character, and diagnosis of stricture, he mentioned the several treatments by gradual and forcible dilatation, by external and internal urethrotomy.

Mr. Lockwood spoke of *meatotomy* and of internal urethrotomy; he dwelt upon the frequency of deep, probably reflex, stricture

disappearing after division of another nearer the meatus, also upon the presence of 'strings' in the urine as a means of diagnosis.

Mr. Coates mentioned as possible causes exposure and drunkenness.

The discussion was continued by Mr. Gill, Mr. Heath, Mr. King, Mr. E. Clark, Mr. S. Paget, Mr. Berry, Mr. Herringham, and Mr. Trotter.

The House-Surgeons replied.

[March 10.]

Mr. Heath read his paper on 'Haemophilia.'

In this paper the author, after briefly alluding to the history and diagnosis of the disease, and discussing the current doctrines as to its aetiology, proceeded to relate the notes of three cases that had recently been treated in St. Bartholomew's Hospital.

In the first of these, that of a man aged 32, the patient had fourteen attacks of recurrent and secondary haemorrhage following a wound in the palm of the hand.

Both the radial and ulnar arteries were tied during the course of treatment, but the haemorrhage was always best controlled by acupressure. The patient recovered at the end of six weeks, with the loss of two fingers, which it was found necessary to amputate.

In the second case, a man aged 25, a member of a well-marked bleeder family, received a small wound in the back, near the spine of the scapula, from a broken piece of glass. The bleeding in this case lasted off and on for ten days, and was at each recurrence effectually controlled by filling the wound with solid perchloride of iron and the application of a pad firmly bandaged on over it.

The third patient, a young man aged 21 (also a member of a well-marked bleeder family), who had previously suffered from almost fatal attacks of haemorrhage and from swelling of the joints, was admitted with a large, spontaneously occurring, blood-tumour in the upper part of the calf of the left leg. On account of great pain and tension and threatened bursting of the cyst, it was punctured by Mr. Holden, and part of its contents evacuated. The bleeding, which continued slightly for thirty-six hours, was stopped at first by the application of an ice-bag, and on its subsequent recurrence, on two occasions, by the application of direct pressure to the wound. The puncture took a long time to heal; but in about eight weeks the patient was well enough to be discharged, nearly the whole of the blood in the tumour having been absorbed. Two or three weeks later, however, he

was readmitted ; the remainder of the blood in the cyst having undergone degeneration, and an abscess having formed at its site, this was cautiously opened, and several ounces of pus mixed with much blood evacuated. The discharge of sanguous pus continued for some days, but the abscess cavity eventually closed completely, and the patient was discharged well.

Special stress was laid on the mode of treatment in this case of blood-tumour by puncture, and of the abscess cavity by incision, both being contrary to the ordinary treatment of such cases as laid down in books, but the result justified the means adopted, and proved the possibility, under exceptional circumstances, of treating 'bleeders' on ordinary surgical principles.

The histories of two female patients were also related, in whom the symptoms were 'haemorrhage,' and the occurrence of subcutaneous haemorrhages at the menstrual periods. These cases were alluded to as supporting Dr. Legg's statement that this was the form of disease most common in women of bleeder families, traumatic haemorrhages being rarely, if ever, seen.

The various methods of treatment, both constitutional and local, were then discussed. For the former, the long-continued administration of iron was specially advocated, as its beneficial effects were so apparent in the cases reported.

In the local treatment, the application of an ice-bag to check interstitial bleeding was strongly recommended, whilst the use of acupressure and the application of solid perchloride of iron combined with pressure was recommended for arresting the haemorrhage from a raw surface.

Finally, the pathology and morbid anatomy of the disease were discussed, the author stating his belief that in most if not all cases of true haemophilia, the blood itself, and also the tissues, more especially the walls of the capillaries and small arteries, were in a morbid condition.

His reasons for thinking the blood in an abnormal condition, were—*First*, that in many of the reported cases, and in those described by himself more particularly, the blood, even that first drawn off, looked pale and watery, and formed a very imperfect coagulum; and, *secondly*, on microscopical examination, the number of corpuscles in a given field were greatly diminished in number, this diminution chiefly affecting the red corpuscles. That the capillaries and tissues were the seat of morbid change, he stated, had been shown by Dr. Kidd in a recent paper, in which the walls of the capillaries and small arteries were stated to have undergone 'hydropic changes,' their calibre being diminished, whilst the mucous membrane of the mouth near the

spot whence fatal bleeding had occurred, was also the seat of necrotic degeneration.

March 17.

Annual meeting for the election of officers for ensuing year. The following were elected :—Presidents, Mr. King, Mr. Bowlby ; Vice-Presidents, Mr. Collins, Mr. Clarke ; Treasurer, Mr. Savory ; Hon. Secretaries, Mr. H. L. Jones, Mr. S. Paget ; Committee-men, Mr. Steedman, Mr. Hind.

EXAMINATIONS, 1878-79.
-----*Lawrence Scholarship and Gold Medal—*

T. KIRSOFF.

Brackenbury Medical Scholarship—

C. P. LUKIS.

Brackenbury Surgical Scholarship—

H. W. T. MUDGE.

Senior Scholarship in Anatomy, Physiology, and Chemistry—

D. D. DAY.

Junior Scholarships—

A. J. ANDERSON.

J. BERRY.

S. DAVIES.

Open Scholarships in Science—

A. J. ANDERSON.

J. BERRY.

*Preliminary Scientific Exhibition—*J. R. FORREST, { Equal.
A. HILL,*Jeaffreson Exhibition—*

A. SHADWELL.

*Kirkes Gold Medal—*G. BARLING, { Equal.
W. T. WYATT,*Bentley Prize—*

HENRY SMITH.

Hichens Prize—

R. JONES.

Wix Prize—

R. JONES.

PRACTICAL ANATOMY.

SENIOR.

- Foster Prize*—C. L. H. TRIPP.
2. F. J. SHORT.
3. W. A. HOYLE.
4. C. A. MORTON.
5. A. C. ROPER.
6. { E. G. COLVILLE.
A. T. G. HEATH.
F. W. ALEXANDER.
7. { J. W. FIELD.
C. A. JAMES.

JUNIOR.

- Treasurer's Prize*—J. BERRY.
2. F. J. WALKER.
3. C. J. STANSBY.
4. A. S. NANCE.
5. H. RAYNER.
6. A. W. WHEATLEY.
7. R. W. JALLAND.
8. J. PAYNE.

EXAMINATIONS, 1879-80.

Lawrence Scholarship and Gold Medal—

D. D. DAY.

Brackenbury Medical Scholarship—

D. A. KING.

Brackenbury Surgical Scholarship—

A. A. BOWLBY.

Senior Scholarship in Anatomy, Physiology, and Chemistry—

A. J. ANDERSON.

Junior Scholarships—

T. W. SHORE.

E. C. PETTIFER.

F. CRESSWELL.

Open Scholarships in Science—

H. LEWIS JONES.

T. W. SHORE.

Preliminary Scientific Exhibition—

J. B. NIAS.

Jeaffreson Exhibition—

A. TRISTLETON.

Kirkes Gold Medal—

D. D. DAY.

Bentley Prize—

G. F. HERRINGHAM.

Hicens Prize—

J. R. FORREST.

Wix Prize—

A. C. FLETCHER.

PRACTICAL ANATOMY.

SENIOR.

- Foster Prize*—R. J. COLLYNS.
 2. J. L. STRETTON.
 3. H. HENDLEY.
 4. F. J. WALKER.
 5. J. BERRY.
 6. { E. W. ROUGHTON.
 { J. WILLIAMS.
 { S. DAVIES.
 7. S. PEUEN.
 8. M. WRIGHT.
 9. H. E. BATEMAN.
 10. A. W. WHEATLEY.

JUNIOR.

- Treasurer's Prize*—A. E. HIND.
 2. T. W. SHORE.
 3. T. E. LOVEGROVE.
 4. C. O'B. HARDING.
 5. A. M. PAGE.
 6. J. F. STEEDMAN.
 7. S. PAGET.

EXAMINATIONS, 1880-81.

Lawrence Scholarship and Gold Medal—

Not awarded.

Brackenbury Medical Scholarship—

G. F. BARNES.

Brackenbury Surgical Scholarship—

J. HARPER.

Senior Scholarship in Anatomy, Physiology, and Chemistry—

T. W. SHORE.

Junior Scholarships.

A. G. GARROD.
 S. H. HABERSHON.
 G. L. WELLS.

Open Scholarships in Science—

J. NALL.
 H. C. CHAPMAN, } Equal.
 S. K. ALCOCK,

Preliminary Scientific Exhibition—

G. L. WELLS.

Jeaffreson Exhibition—

R. WRIGLEY.

Kirkes Gold Medal—

W. P. HERRINGHAM.

Bentley Prize—

J. BERRY.

Hichens Prize—

R. ORR.

*Prox. accessit.—A. SHADWELL.**Wix Prize—*

J. R. FORREST.

Harvey Prize—

- | | |
|--|---|
| 1. E. C. PETTIFER.
2. A. M. PAGE.
3. E. J. CAVE. | 4. { E. A. OPIE.
5. { J. F. STEEDMAN.
6. A. GRESSWELL.
7. E. W. WILLETT. |
|--|---|

PRACTICAL ANATOMY.

SENIOR.

- Foster Prize*—A. E. HIND.
 2. H. C. C. SHAW.
 3. J. F. STEEDMAN.
 4. J. N. VOGAN.
 5. { E. J. CAVE.
 6. { R. DE MORINI.
 7. { C. O'B. HARDING.
 8. { A. M. PAGE.

JUNIOR.

- Treasurer's Prize*—J. C. HEATH.
 2. H. W. CHAMBERS.
 3. H. C. CHAPMAN.
 4. { J. P. FRNOULHET.
 5. { E. JESSOP.
 6. N. W. WOODS.
 7. C. H. UPHAM.
 8. G. P. NEWBOLT.
 9. C. KEBELL.
 10. J. GAY.

ST. BARTHOLOMEW'S HOSPITAL & COLLEGE.

THE MEDICAL AND SURGICAL STAFF.

Consulting Physicians—Sir G. Burrows, Bart., D.C.L, F.R.S.,
Dr. Farre, Dr. Martin, Dr. Harris.

Consulting Surgeons—Sir J. Paget, Bart., D.C.L., LL.D.,
F.R.S., Mr. Luther Holden.

Physicians—Dr. Andrew, Dr. Southey, Dr. Church, Dr. Gee.

Surgeons—Mr. Savory, F.R.S., Mr. Thomas Smith, Mr.
Willett, Mr. Langton.

Assistant-Physicians—Dr. Duckworth, Dr. Hensley, Dr.
Brunton, F.R.S., Dr. Wickham Legg.

Assistant-Surgeons—Mr. Morrant Baker, Mr. Marsh, Mr.
Butlin, Mr. Walsham.

Physician-Accoucheur—Dr. J. Matthews Duncan.

Assistant-Physician-Accoucheur—Dr. Godson.

Ophthalmic Surgeons—Mr. Power, Mr. Vernon.

Dental Surgeon—Mr. Coleman.

Assistant-Dental Surgeons—Mr. Lyons, Mr. Ewbank.

Administrator of Chloroform—Mr. Mills.

Casualty Physicians—Dr. P. Kidd, Dr. S. Nall, Dr. H. K.
Tooth.

Medical Registrar—Dr. S. West.

Surgical Registrars—Mr. Macready, Mr. Harrison Cripps.

LECTURES.

Medicine—Dr. Andrew, Dr. Gee.

Clinical Medicine—Dr. Andrew, Dr. Southey, Dr. Church,
Dr. Gee.

Surgery—Mr. Savory, F.R.S.

Clinical Surgery—Mr. Savory, F.R.S., Mr. Thomas Smith,
Mr. Willett, Mr. Langton.

Descriptive and Surgical Anatomy—Mr. Langton, Mr
Marsh.

General Anatomy and Physiology—Mr. Morrant Baker.

Histology—Dr. Klein, F.R.S.

Chemistry and Practical Chemistry—Dr. Russell, F.R.S.

Materia Medica—Dr. Brunton, F.R.S.

Forensic Medicine—Dr. Southey.

Public Health—Dr. Thorne.

Midwifery and the Diseases of Women and Children—Dr.
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Botany—Rev. George Henslow.

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Comparative Anatomy—Dr. Moore.

Ophthalmic Medicine and Surgery—Mr. Power.

Dental Anatomy and Surgery—Mr. Coleman.

Mental Diseases—Dr. Claye Shaw.

DEMONSTRATIONS.

Morbid Anatomy—Dr. Moore.

Diseases of the Skin—Mr. Morrant Baker.

Orthopædic Surgery—Mr. Marsh.

Diseases of the Ear—Mr. Cumberbatch (Acting).

Diseases of the Eye—Mr. Vernon.

Practical Surgery—Mr. Butlin, Mr. Walsham.

Practical Anatomy and Operative Surgery—Mr. Bruce-Clarke,
Mr. F. Swinford Edwards, Mr. C. B. Lockwood.

Assistant Demonstrators—Mr. Griffith, Mr. J. F. Bullar.

Mechanical and Natural Philosophy—Mr. F. Womack.

Practical Physiology—Dr. V. D. Harris.

Assistant Demonstrators—Dr. Ormerod, Dr. Nall.

Chemistry—Dr. Armstrong.

Medical Tutor—Dr. S. West.

Assistant Medical Tutor—Dr. P. Kidd.

Curator of the Museum—Mr. Bowlby.

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Warden—Dr. NORMAN MOORE.

Students can reside within the Hospital walls, subject to the College regulations.

Ten Scholarships, varying in value from £20 to £100, are awarded annually.

Further information respecting Scholarships, Pupils' Appointments, and other details, may be obtained from Dr. Norman Moore, and at the Museum or Library.

ST. BARTHOLOMEW'S HOSPITAL REPORTS.

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The Editors of the St. Bartholomew's Hospital Reports are in no way responsible for the Statistical Tables of the Hospital, which, by the kindness of the Governors, they are permitted to publish in the Volume of Hospital Reports.

ERRATA.

- On Page 12. **TYPHUS**.—The figure 2 in the column "Died under 40" to be omitted.
- " " **ENTERIC FEVER**.—The figure 8 to be inserted in the column of "Male Deaths"; the figure 2 in the column of "Deaths under 40."
- " 15. **PHTHISIS PULMONALIS**.—The totals correct, but one patient discharged has not been registered in the Age columns.
- " " **DIABETES**.—Totals correct; one patient too many has been registered as discharged in the Age column.
- " 19. **VALVE DISEASE, AORTIC.** { In each case one patient Ditto **MITRAL.** } discharged has not been registered in the Age columns.
- " 22. **BRONCHITIS, CHRONIC**.—The totals correct, but some patients discharged have not been registered in the Age columns.
- " " **PNEUMONIA**.—Totals correct; one patient discharged has not been registered in the Age columns.
- " " **HÆMOPTYSIS**.—Totals correct; one patient has not been registered in the Age columns.
- " " **PLEURISY**.—In the column "Male Deaths," for 1 read 11.
- " 26. **JAUNDICE**.—Totals correct; some patients discharged have not been registered in the Age columns.
- " " **PERITONITIS**.—Totals correct; one Female death not registered in the Age columns.
- " " **TUMOURS**.—Totals correct; some patients discharged not registered in the Age columns.
- " 27. **BRIGHT'S DISEASE, ACUTE.** { In column "under 50," Ditto **CHRONIC.** } transpose figures 12 & 1.
- " 29. " " Total of Patients."—For 143, read 149.
- " 34. **DEBILITY**.—Totals correct; one patient discharged has not been registered in the Age columns.
- " 38. " " Line 2"—For *Bronchle*, read *Knuckle*.
- " " " 7."—For *Intersusception*, read *Intussusception*.
- " " " 39."—For *Dyemenorrhœa*, read *Dysmenorrhœa*.
- " " " 40."—*Hydramnوس*, read *Hydramnios*.





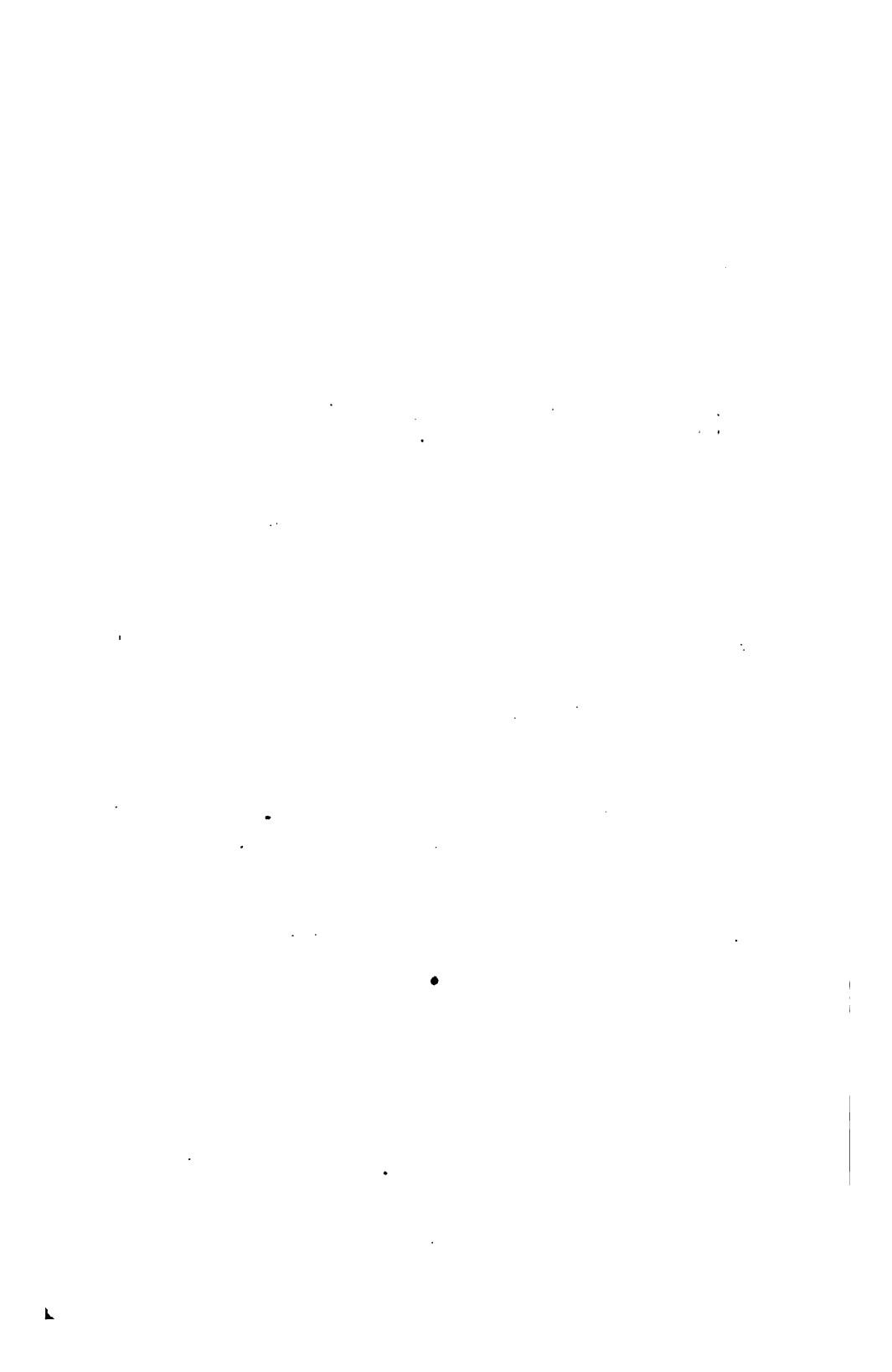
STATISTICAL TABLES
OF THE
Patients under Treatment
IN THE WARDS OF
ST. BARTHOLOMEW'S HOSPITAL

DURING 1880.

BY
THE MEDICAL REGISTRAR,
FRANCIS H. CHAMPNEYS, M.B. (OXON.)—M.R.C.P.;
AND
THE SURGICAL REGISTRARS,
J. MACREADY, F.R.C.S.
AND
W. HARRISON CRIPPS, F.R.C.S.

LONDON:
HARRISON AND SONS, ST. MARTIN'S LANE,
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1881.



PREFACE.

Considerable changes have been made in both Surgical and Medical Tables, in accordance with the recommendations of a meeting of Hospital Registrars.

Tables I and II have been amalgamated.



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SURGICAL REPORT—

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ST. BARTHOLOMEW'S HOSPITAL.

1880.

Number of Beds in Medical Wards (including 14 for Diseases of Women)	230
" " * Surgical " { including 6 for Diseases of Women } and 26 for Ophthalmic Cases }	405
" " Unassigned	18
	<hr/>
	653

GENERAL STATEMENT OF THE PATIENTS UNDER TREATMENT DURING THE YEAR.

Patients remaining January 1st, 1880:

Medical	....	....	....	196	}	....	488	}
Surgical	....	....	....	292		....	
								6529

Admitted during the year:

Medical	2344	}	6041	}
Surgical	3697			

Discharged:

Medical	1956	}	5447	}
Surgical	3491			

Died:

Medical	385	}	562	}
Surgical	177			

Remaining January 1st, 1881:

Medical	199	}	520	}
Surgical	321			

Patients brought in Dead 10

Number of Post-mortem Examinations 368

* The number of Surgical Beds varied during the year.

OCCUPATIONS OF MALE PATIENTS.

Accountants ..	2	Carvers..	..	..	2	Engine drivers ..	..	5
Accoutrement maker ..	1	Case makers ..	..	..	2	Engineers ..	..	21
Actors ..	3	Cashier..	..	..	1	Engine turners ..	..	2
Almanack seller ..	1	Cellarmen ..	..	..	2	Engravers ..	..	3
Architect ..	1	Chaff-cutters ..	..	..	2	Errand boys ..	..	18
Asphalters ..	2	Chair-makers ..	..	..	5	Excavator ..	..	1
Auctioneer ..	1	Chandler ..	..	..	1	Fancy-box maker ..	..	1
Australian bushman ..	1	Cheesemongers ..	..	..	2	Farmers ..	..	2
Bacon washer ..	1	Chimney sweep ..	..	..	1	Farm labourers ..	..	4
Bailiff ..	1	Chiropodist ..	..	..	1	Farriers ..	..	10
Bakers ..	17	Cigar-box makers ..	..	..	5	Fist maker ..	..	1
Bargemen ..	4	Cigar makers ..	..	..	2	Firemen ..	..	3
Barmen ..	8	Cleaner ..	..	..	1	Fisherman ..	..	1
Basketmakers ..	4	Clerks ..	..	..	72	Fishing-rod maker ..	..	1
Bathman ..	1	Clickers ..	..	..	2	Fishmongers ..	..	6
Beadle ..	1	Clockmaker ..	..	..	1	Fish salesman ..	..	1
Billiard marker ..	1	Cloth workers ..	..	..	2	Floor-cloth maker ..	..	1
Black-lead maker ..	1	Coachmaker ..	..	..	1	Flower makers ..	..	2
Blacksmiths ..	12	Coachmen ..	..	..	2	Flower sellers ..	..	2
Bleacher ..	1	Coalheavers ..	..	..	7	Footman ..	..	1
Blind painter ..	1	Coal porter ..	..	..	1	Foremen ..	..	2
Boatman ..	1	Coal whipper ..	..	..	1	French polishers ..	..	15
Boiler makers ..	6	Coastguard ..	..	..	1	Furniture dealer ..	..	1
Bone setter ..	1	Coffee-house keepers ..	..	..	2	Furriers ..	..	8
Bonnet-shape makers ..	2	Coffin maker ..	..	..	1	Gardeners ..	..	13
Bookbinders ..	21	Collar makers ..	..	..	2	Gas engineer ..	..	1
Book-case gilder ..	1	Colonel..	..	..	1	Gasfitters ..	..	9
Bookkeeper ..	1	Colour grinder ..	..	..	1	Gas-meter maker ..	..	1
Bookseller ..	1	Commercial travellers ..	..	..	18	General dealers ..	..	3
Boot finishers ..	6	Commission agents ..	..	..	4	Gentlemen ..	..	6
Bootmakers ..	29	Compositors ..	..	..	17	Gilders ..	..	3
Boot rivetter ..	1	Confectioners ..	..	..	5	Glassblowers ..	..	3
Bottle washers ..	5	Cooks ..	..	..	4	Glass cutters ..	..	2
Bow and arrow maker ..	1	Coopers ..	..	..	4	Glass fitter ..	..	1
Box makers ..	7	Coppersmiths ..	..	..	2	Glass grinder ..	..	1
Brace maker ..	1	Corn chandler ..	..	..	1	Glass-shade makers ..	..	2
Brass finishers ..	5	Corn dealers ..	..	..	2	Glass silverer ..	..	1
Brass turner ..	1	Costermongers..	..	..	4	Glass worker ..	..	1
Brewers ..	5	Courier..	..	..	1	Goldsmiths ..	..	2
Bricklayers ..	59	Cowherd ..	..	..	1	Greengrocers ..	..	9
Brickmakers ..	3	Cowkeeper ..	..	..	1	Grinders ..	..	4
Brush makers ..	4	Custom-house officer ..	..	..	1	Grocers ..	..	6
Butchers ..	43	Cutler ..	..	..	1	Grooms ..	..	10
Button makers ..	1	Dairymen ..	..	..	2	Guards ..	..	2
Cabinetmakers ..	84	Decorators ..	..	..	2	Gunsmith ..	..	1
Cabmen ..	25	Dock labourers ..	..	..	8	Hairdressers ..	..	7
Cab washer ..	1	Doctor ..	..	..	1	Hammerman ..	..	1
Cane maker ..	1	Drapers ..	..	..	10	Harnessmakers ..	..	3
Captain (army) ..	1	Draughtsman ..	..	..	1	Hatters ..	..	3
Card maker ..	1	Draymen ..	..	..	2	Hawkers ..	..	33
Carmen ..	118	Drovers ..	..	..	8	Horse dealer ..	..	1
Carpenters ..	58	Drysalters ..	..	..	2	Horsehair curler ..	..	1
Carpet maker ..	1	Dyers ..	..	..	5	Horsehair dresser ..	..	1
Carriers ..	2	Electro-plater ..	..	..	1	Horse slaughterer ..	..	1
Carter ..	1	Emery maker ..	..	..	1	House agent ..	..	1

OCCUPATIONS OF MALE PATIENTS (*continued*).

Housekeeper ..	1	Paper stainers..	5	Soap maker ..	1
Indiarubber makers ..	3	Paupers ..	3	Soldiers ..	11
Ink maker ..	1	Paviors..	2	Solicitor ..	1
Instrument makers ..	3	Pawnbroker ..	1	Sorters ..	2
Interpreter ..	1	Photographer ..	1	Spice baker ..	1
Iron founders ..	6	Physician ..	1	Stationers ..	2
Iron moulders ..	3	Pianoforte makers ..	7	Steeple keeper..	1
Ivory turner ..	1	Piano tuners ..	2	Stevedores ..	8
Japanners ..	2	Picture dealer..	1	Stokers..	10
Jewel-case makers ..	2	Picture-frame makers..	2	Stone cutter ..	1
Jewellers ..	4	Pilot ..	1	Stone mason ..	1
Jockeys ..	2	Pipe makers ..	4	Storekeepers ..	2
Joiners..	5	Plasterers ..	10	Students ..	9
Journalist ..	1	Plate-layer ..	1	Surgeon ..	1
Labourers ..	237	Plumbers ..	9	Sweeps..	6
Lace maker ..	1	Policemen ..	17	Tailors ..	19
Lay preacher ..	1	Polisher ..	1	Tanner ..	1
Leaf stainer ..	1	Porters..	140	Telegraph clerks ..	5
Leather dressers ..	4	Postmen ..	9	Telegraph engineers ..	2
Letter carrier ..	1	Post-office sorters ..	2	Tent maker ..	1
Liftman ..	1	Potato salesman ..	1	Thermometer maker ..	1
Lightermen ..	8	Potmen ..	19	Ticket collectors ..	4
Linguists ..	2	Potboy ..	1	Timekeeper ..	1
Lithographers..	5	Poulterer ..	1	Tinfoil worker..	1
Lock-gateman ..	1	Printers ..	64	Timmen ..	3
Locksmith ..	1	Printer's boy ..	1	Tin-plate workers ..	6
Lodging-house keepers ..	2	Publicans ..	4	Tobacconist ..	1
Looking-glass makers..	1	Putty maker ..	1	Tripe dresser ..	1
Machine boy ..	1	Railway guard ..	1	Turncock ..	1
Machinist ..	1	Railway porters ..	4	Turners ..	4
Machine rulers ..	8	Readers ..	2	Typefounders ..	6
Maltster ..	1	Saddler ..	1	Umbrella makers ..	4
Manager of insurance..	1	Safe maker ..	1	Undertakers ..	2
Marble polisher ..	1	Sail makers ..	2	Upholsterers ..	4
Marine-store dealer ..	1	Sailors ..	35	Usher ..	1
Market gardener ..	1	Saw maker ..	1	Van boys ..	7
Masons..	12	Sawyers ..	15	Van guard ..	1
Mattress maker ..	1	Scaffolders ..	2	Victualler ..	1
Mechanics ..	8	Schoolboys ..	186	Waiters ..	18
Merchant ..	1	Scripture reader ..	1	Warehousemen ..	36
Messengers ..	6	Sea cook ..	1	Warehouse boy ..	1
Methodist preacher ..	1	Servants ..	8	Watchmakers ..	6
Milkmen ..	6	Sewermen ..	3	Watchmen ..	8
Millers..	4	Shampoor ..	1	Watermen ..	5
Miners ..	8	Shepherds ..	2	Weavers ..	2
Musician ..	1	Ship keeper ..	1	Well sinker ..	1
Navvies ..	3	Shipwrights ..	3	Wharfinger ..	1
Newsvendors ..	3	Shoeblack ..	1	Wheelwrights ..	5
Night watchman ..	1	Shoemakers ..	33	White-lead carrier ..	1
Omnibus conductors ..	7	Shop boy ..	1	White-lead washer ..	1
Omnibus drivers ..	8	Shopmen ..	8	Whitesmith ..	1
Ostlers ..	30	Shunter ..	1	Wine packer ..	1
Packers ..	26	Signalmen ..	4	Wire workers ..	2
Packing-case makers ..	3	Silver polisher..	1	Wood carver ..	1
Painters ..	44	Silversmiths ..	2	Wood choppers ..	2
Paper cutters ..	2	Skin dresser ..	1	Wood turners..	2
Paperhanglers ..	5	Slater ..	1	Writer ..	1
Paper maker ..	1	Smiths ..	7		

OCCUPATIONS OF FEMALE PATIENTS.

Artificial-flower makers ..	6	Flower sellers ..	..	6	Paper-bag makers ..	..	2
Artificial-leaf makers ..	2	French polishers ..	..	7	Paper colourer ..	..	1
Artist	1	Fret worker ..	..	1	Paper stainer ..	..	1
Bakeress	1	Frilling maker ..	..	1	Paper sorters ..	..	2
Barmaids	10	Fringe maker ..	..	1	Parasol maker ..	..	1
Bird-cage maker	1	Furriers ..	..	5	Pauper ..	..	1
Bonnet maker	1	Fur sewers ..	..	4	Pickle maker ..	..	1
Bonnet-shape makers ..	2	General dealers ..	..	2	Probationers ..	..	2
Bookbinders	3	Gilder ..	..	1	Relief stamper ..	..	1
Bookfolders	15	Governess ..	..	1	Rope maker ..	..	1
Bookkeepers	2	Harlots ..	..	125	Sauce maker ..	..	1
Book sewers	2	Hat maker ..	..	1	School girls ..	..	118
Boot makers	5	Hat trimmer ..	..	1	Schoolmistresses ..	..	3
Boot sewer	1	Hawkers ..	..	15	Scrubber ..	..	1
Bottle sorter	1	Hop picker ..	..	1	Scullery maid ..	..	1
Box labeller	1	Horse-hair carder ..	..	1	Servants ..	..	330
Box makers	4	Hosier ..	..	1	Shoemaker ..	..	1
Brush drawer	1	Housekeepers ..	..	4	Shopwomen ..	..	10
Button-hole maker ..	1	Housemaids ..	..	15	Silk warper ..	..	1
Cabinet maker	1	Housewives ..	..	632	Silk winder ..	..	1
Cap maker	1	India-rubber worker ..	..	1	Stationer ..	..	1
Card cutter	1	Innkeeper ..	..	1	Straw-hat maker ..	..	1
Cartridge maker	1	Ironers ..	..	9	Straw plaiter ..	..	1
Chair maker	1	Japanner ..	..	1	Straw worker ..	..	1
Charwomen	41	Laundresses ..	..	77	Tailoresses ..	..	21
Cigar-case makers ..	3	Machinists ..	..	34	Tarpaulin maker ..	..	1
Clog maker	1	Manglers ..	..	2	Teacher ..	..	1
Collar ironers	2	Mantle makers ..	..	8	Telegraphist ..	..	1
Collar liner	1	Match makers ..	..	4	Tobacconist ..	..	1
Collar makers	2	Matron ..	..	1	Tooth-brush drawer ..	..	1
Collar washer	1	Midwife ..	..	1	Trimming makers ..	..	8
Confectioners	2	Milk carrier ..	..	1	Umbrella makers ..	..	3
Cooke	37	Milliners ..	..	7	Upholstress ..	..	1
Dairymaid	1	Missionary ..	..	1	Vocalist ..	..	1
Draper	1	Musician ..	..	1	Waistcoat makers ..	..	2
Dressmakers	37	Needlewomen ..	..	24	Waitresses ..	..	5
Dyer	1	Nurses (hospital) ..	..	22	Ward maids ..	..	9
Embroidery maker	1	" (monthly) ..	..	8	Waterproof tailoress ..	..	1
Envelope folders	3	" (private) ..	..	16	Waterproof maker ..	..	1
Fancy-box makers ..	2	Nursery governesses ..	..	2	Weavers ..	..	4
Fancy-shop keeper	1	Office cleaners ..	..	3	White-lead carriers ..	..	3
Feather maker	1	Ostrich-feather cutter ..	..	1	Wool sorter ..	..	1
Firewood cutter	1	Packer ..	..	1	Wood chopper ..	..	1
Florist	1						

MEDICAL REPORT.

TABLE I.

TABLE I (continued).

DISEASES.	Total	GENERAL DISEASES, B.						Reference to Appendix.	
		Under 6.	— 10.	— 20.	— 30.	— 40.	— 50.	— 60.	Over 60.
		Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	Died.	
Rheumatism—									
Acute	146	66	4	1	4	1	56	2
Subacute	83	13	20	..	3	..	12	..
Gonorrhœal	5	5	..	..	..	..	..	..
Synovial	3	..	..	..	2	..
Muscular	2	..	..	..	5	..
Lumbago	2	..	..	..	..	..
Chronic	29	10	19	..	..	..	..	..
Gout—									
Acute	2	..	..	..	4	..
Chronic	5	4	1	..	3	..
Chronic Osteo-arthritis	6	..	..	..

— 6

TABLE I (*continued*).

DISEASE.		Reference to Appendix.					
Under 5.	— 10.	— 20.	— 30.	— 40.	— 50.	— 60.	Over 60.
Discharged.	Discharged.	Discharged.	Discharged.	Discharged.	Discharged.	Discharged.	Discharged.
Died.	Died.	Died.	Died.	Died.	Died.	Died.	Died.
M F	M F	M F	M F	M F	M F	M F	M F
Total.							
LOCAL DISEASES.							
DISEASES OF THE NERVOUS SYSTEM.							
Diseases of the BRAIN AND ITS MEMBRANES.							
Kinephalitis ..	..	13	4	2	6	1	2
Meningitis ..	..	..	..	..	1	..	..
Abcess ..	..	..	..	1	..	..	..
Apoplexy— Sanguineous ..	..	16	..	9	7	..	1
Chronic Hydrocephalus ..	..	4	4	..	3	1	2
Softening ..	..	..	6	..	1	3	..
Tumour ..	..	..	..	6	1	..	..
Cerebral Affection ..	..	..	..	..	..	..	..
Diseases of the SPINAL CORD AND ITS MEMBRANES.							
Inflammation— Mylitis ..	..	..	6	3	2	1	..

DISEASE.	Total.	DISORDERS OF THE NERVES.						Reference to Appendix.	
		Under 5.	— 10.	— 20.	— 30.	— 40.	— 50.	— 60.	
Hemiplegia	..	35	10	24	1	..	..	..	— 8
Paraplegia	16	9	5	1	..	..	..
Paraparesis	3	3	..	..	..	..
Locomotor Ataxy	3	1	..	..	..	..
Infantile Paralysis	3	1	2	..	..	..
Local Paralysis—	3	1	..	..	..	..
Facial Paralysis
Other Paralyses
Functional Diseases of the Nervous System.									
Hydrophobia	2	..	2	..	..	..	..
• Infantile Convulsions	7	1	4	..	..	..	..
Epilepsy	30	17	13	..	..	..	..
• Epileptic Vertigo	1	1	1	..	..	..	..
• Convulsions
Spasms of Muscles	3	2	1	..	..	..	..
Laryngismus	1	1	..	..	..	..	..
Paroxysmal Agitans..	1	1	..	..	..	..	..
Chorea	40	5	34	..	..	..	..
Hysteria	47	6	42	..	..	..
Hystero-Paralysis

TABLE I (*continued*).

DISEASES.	TOTAL.						Discharged.	Discharged.	Discharged.	Discharged.	Discharged.	Over 60.	Reference to Appendix.
	Under 5.	— 10.	— 20.	— 30.	— 40.	— 50.							
Neuralgia—													
Various	8	..	..	..				
Brow Aigue	9	7	2							
Sciatica	4	1	3							
Pleurodynia	4	4	..							
Hypochondriasis	4	4	..	..					
Vertigo	4	3	1	..							
Various Nerve Disorders	41	24	16	..	1	4	..				
DISORDERS OF THE INTELLECT.													
Mania	6	3	3	..	..	..	1	..	1	..
Melancholia	1	1	..	..	..	..	1	..	..	..
Dementia	3	2	1	..	..	..	1	..	..	..
	333	117	173	27	16	..	..	..	..	..	..	..	..

— 9

Disease.	Under 10.				— 10.				— 20.				— 30.				— 40.				— 50.				— 60.				Reference to Appendix.
	Discharged.																												
DISEASES OF THE CIRCULATORY SYSTEM.																													
DISEASES OF THE HEART AND ITS MEMBRANES.																													
<i>Diseases of the Pericardium.</i>																													
Pericarditis	7	..	2	2	3
Adherent Pericardium
<i>Diseases of the Endocardium.</i>																													
Valve Disease —																													
1. Aortic	28	10	7	9	2
2. Mitral	65	14	37	2	12
3. Tricuspid
4. Complicated	29	12	6	3	5	1
5. Congenital	3
<i>Diseases of the Muscular Structure of the Heart.</i>																													
Dilatation

TABLE I (*continued*).

TABLE I (*continued*).

DISEASES.		Under 5.						— 10.						— 20.						— 30.						— 40.						— 50.						— 60.						Reference to Appendix.	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F						
DISEASES OF THE RESPIRATORY SYSTEM.																																													
DISEASES OF THE RESPIRATORY SYSTEM NOT SIMPLY LOCAL.																																													
Group	2	
Laryngeal Catarrah	2	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	
Laryngitis—																																													
Acute	10	5	1	3	1	2	4	1	
Chronic	2	..	2	
DISEASES OF THE TRACHEA AND BRONCHI.																																													
Bronchial Catarrah	11	8	3	3	..	2	..	1	..	3	..	2	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	
Bronchitis																																													
Acute	24	7	12	2	3	10	4	2	..	1	..	3	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	
Chronic	47	21	21	1	
*Foreign body	1
Asthma

Discharged.

Died.

Discharged.

— 13

Died.

Discharged.

Died.

— 14

TABLE I (*continued*).

TABLE I (continued).

Disease.	Total.				Under 5.	— 10.	— 20.	— 30.	— 40.	— 50.	— 60.	Over 60.	Reference to Appendix.	
	M	P	R	D										
DISEASES OF THE DIGESTIVE SYSTEM (continued).														
DISEASES OF THE INTESTINES.														
Enteritis	2	1	1	1	1	1	1	1	1	1	— 17
Typhlitis	1	1	1	1	1	1	1	1	1	1	— 18
Dysentery	5	4	4	2	2	2	2	2	2	2	
Sequelae of Dysentery	1	1	1	1	1	1	1	1	1	1	
Ulceration	8	2	1	1	1	1	1	1	1	1	
Perforation	
Inflammation of the Subperitoneal Tissue	8	4	2	2	2	2	2	2	2	2	
Melæna	
*Tympanites	
*Obstruction	6	1	1	1	1	1	1	1	1	1	
Intussusception	1	1	1	1	1	1	1	1	1	1	
Internal Strangulation	13	7	5	4	4	4	4	4	3	3	
Diarrhea	8	6	2	1	1	1	1	1	2	2	
Colic	8	6	2	1	1	1	1	1	1	1	
Constipation	11	3	8	6	6	6	6	6	3	3	
Diarrhea and Vomiting	8	1	2	2	2	2	2	2	1	1	

TABLE 1 (*continued*).

TABLE I (*continued*).

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DURATION.	Under 5.			— 10.			— 20.			— 30.			— 40.			— 50.			— 60.			Over 60.			Reference to Appendix.	
	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P		
DISEASES OF THE URINARY SYSTEM.																										
DISEASES OF THE KIDNEY.																										
Bright's Disease—																										
1. Acute	20	14	4	2	16	14	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2. Chronic	69	24	16	14	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscess	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pyelitis	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydronephrosis	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Calculus	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*Hæmaturia Renalis	7	6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*Hæmatinuria	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
*Diuresis..	
DISEASES OF THE BLADDER.																										
*Hæmaturia (Vesical)	
	104	47	25	16	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

— 20

— 21

TABLE I (*continued*).

TABLE I (*continued*).

TABLE I (*continued*).

TABLE 1 (continued).

TABLE I (*continued*).

TABLE I (continued).

DISEASES.	Diseases of the Cutaneous System.				Parasitic Diseases of the Skin.				Reference to Appendix.
	Total	Discharged.	Deid.	Discharged.	Deid.	Discharged.	Deid.	Over 60.	
	M	F	M	F	M	F	M	F	
Erythema—									
E. Lere..	6	4	2	1	1	1	1	1	:
E. Nodorum	3	2	3	1	1	1	2	2	:
Rosacea	1	1	1	1	1	1	1	1	1
Urticaria	1	1	1	1	1	1	1	1	1
Lichen	1	1	1	1	1	1	1	1	1
Pсоріаѕіs	1	1	1	1	1	1	1	1	1
Pemphigus	4	1	3	1	1	1	1	1	1
Eczema—									
E. Simplex	8	2	6	1	1	1	2	2	1
E. Exfoliativum	18	6	7	1	1	1	2	2	2
E. Chronicum	1	1	1	1	1	1	1	1	1
Impetigo	1	1	1	1	1	1	1	1	1
Keratoma	1	1	1	1	1	1	1	1	1
Ichthyosis..	1	1	1	1	1	1	1	1	1
Scleroma	1	1	1	1	1	1	1	1	1
Boils	1	1	1	1	1	1	1	1	1
Nervus Pilaris	1	1	1	1	1	1	1	1	1
Molluscum	2	1	2	1	1	1	2	2	1
Mycoedema	1	1	1	1	1	1	1	1	1
PARASITIC DISEASES OF THE SKIN.									
Phthisieriasis	2	1	1	1	1	1	1	1	1
	46	19	27	11	11	11	19	27	11

TABLE I (*continued*) 34

ABSTRACT OF TABLE I.

DISEASES.	Total of Cases completed during the Year.		Number of Cases discharged.		Died.		Remaining in the Hospital at the end of the year 1880.	
	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES, A ::	805	191	22	29		
Do. B ::	802	171	63	55		
Local Diseases—								
Diseases of the Nervous System	833	117	173	37	16	
" Circulatory System	167	66	21	29		
" Absorbent System	3	1	1	..		
" Ductless Glands	8	..	7	1		
" Respiratory System	316	167	90	41	18	
" Digestive System	232	81	126	9	16	
" Urinary System	104	47	25	16	16	
" Female Organs of Generation	149	..	148	..	1	
Affections connected with Pregnancy	25	..	25	..	..
Diseases of the Organs of Locomotion	14	10	4	..	..
" Cellular Tissue	2	1	1	..	..
" Cutaneous System	46	19	27	..	..
CONDITIONS NOT NECESSARILY ASSOCIATED WITH GENERAL OR LOCAL DISEASES	80	24	52	1	3	
Poisons	55	40	15	..	..
	2341		865	1091	202	193	199	
			1966		395			
					2341			

APPENDIX TO TABLE I.

1. *Vaccinia*.—Patient was a milkman.
2. *Scarlet Fever*.—Eight cases caught in Hospital.
3. *Enteric Fever*.—Four cases caught in Hospital.
4. *Relapsing Fever*.—A doubtful case.
5. *Diphtheria*.—Tracheotomy in 13 cases, 9 died, 4 recovered.
6. *Gonorrhœal Rheumatism*.—Joints affected ; (1) right shoulder, both hips, both feet ; (2) right wrist ; (3) right ankle ; (4) both knees, right ankle, both shoulders, both wrists.
7. *Lupus*.—All the cases affected the female generative organs. The fatal case was due to erysipelas.
8. *Hydrocephalus*.—(1) a schoolboy aged 10, bitten on cheek 5 weeks previously, death on second day after development of symptoms. Injections of curara ; (2) labourer aged 30, bitten May 2nd, symptoms began June 16. Treatment chloral, and eyes and ears closed, spasms less frequent ; death on fourth day after development of symptoms.
9. *Various Nerve Disorders*.—Two cases of disseminated sclerosis ; one of them fatal, no autopsy allowed. Among the others were cases of cervical opisthotonus ; choreic movements of the right arm and leg, with chronic choroiditis in a boy the subject of congenital syphilis ; paralysis of muscles of right arm.
10. *Phlegmasia dolens*.—(1) right leg affected ; began 14 days after confinement, one previous attack ; (2) left leg affected ; began 7 days after confinement of a still-born child ; (3) embolic infarcts in right lung.
11. *Obstruction of Veins*.—(1) one leg affected ; (2) both legs and scrotum, but not feet ; (3) right leg, after pneumonia ; (4) large veins in lower part of trunk ; (5) left internal saphenous vein ; (6) left leg.
12. *Hypertrophy of Glands*.—Lymphadenoma in a man aged 60, fatal ; another case of lymphadenoma was discharged.
13. *Acute Laryngitis*.—Four cases of membranous laryngitis were fatal ; in one of them tracheotomy was performed.
In four other cases tracheotomy was followed by recovery.
14. *Foreign Body*.—A child aged 2 ; sudden cough and dyspnoea with a history of something having stuck in the throat. On admission two days later, dulness on right side of chest. Tracheotomy, death on third day. Autopsy showed a seed in right bronchus, lower lobe and lower half of middle lobe of right lung collapsed.
15. *Tumour of Lung*.—Fatal case in a man aged 50 ; a firm whitish tumour growing from posterior wall of left auricle through pulmonary veins into right lung.
16. *Dysphagia*.—A labourer, aged 42, had dysphagia once a month, at which time only he could regurgitate his food.

17. *Intestinal Obstruction*.—Four fatal cases, one caused by bands of adhesion, constricting a bronchile of ileum four feet above the ileo-caecal valve ; no peritonitis.

Two other cases caused by uterine fibroids ; in both cases the small intestine was the part obstructed. In one of them a diverticulum three feet above the ileo-cecal valve adhered to a mass of uterine fibroids ; another adhesion between the tumour and the intestine constricted the small intestine.

18. *Intussusception* in an infant aged 4 months, cured by injections.

19. *Peritonitis* in one fatal case due to a circumscribed abscess in Douglas' pouch which had burst into the peritoneal cavity.

20. *Abscess of Kidney*. In one fatal case the abscess implicated the Colon and Lung.

21. *Hæmatinuria* in a girl, aged 12, intermittent with slight jaundice and enlarged spleen.

22. *Inflammation of Ovary* in one case with spermatic neuralgia.

23. *Pelvic Peritonitis* in one case from passing the sound.

24. *Pelvic Cellulitis*.—Two cases of "parametritis iliaca ;" in one with necrosis of the ileum. One case of "parametritis anterior," and one of "parametritis inguinialis."

25. *Pelvic Abscess*.—One parametric case burst per rectum.

26. *Pelvic Haematocele*.—The fatal case followed tapping.

27. *Endometritis*.—(1) patient aged 29 ; uterus scraped, recovery ; (2) patient aged 43, fungous endometritis, mucous membrane hanging in festoons from fundus uteri ; avulsion, recovery.

28. *Fibrous Tumour*.—Two cases of inflamed fibroids ; one impacted fibroid was pushed up ; in one case septic intoxication followed incision of the capsule ; in one case a fibroid growth had been partially removed 2½ years previously ; the stump never healed, but no ill results followed.

29. *Polypus*.—Severe arterial haemorrhage followed the removal of a mucous polypus.

30. *Procidentia*.—In one case the perineum was sown up.

31. *Cicatrix of Vagina*.—Two cases of atresia post partum.

32. *Tumours of Vagina*.—In one case a fibrous tumour growing from the anterior column of the vagina.

33. *Malformations of Vagina*.—Absence of vagina in a woman aged 22 ; a new vagina was cut, which contracted and rendered the operation unavailing.

34. *Mucous cyst of Vulva*.—A woman, aged 31, had an enormous varicocoele of the right labium, also a large sebaceous cyst which contained 4 oz. of putty like matter.

35. *Dyemenorrhœa*.—One patient was cured by the use of bougies.

36. *Hydrammos*, with twin pregnancy ; abortion procured.

37. *Retention of part of the Ovary*.—Two cases of placental polypus ; in one case a growth of some 2½ months was retained till 5 months.

38. *Enlargement of Muscles*.—Enlarged masseter and temporal muscles in a girl of 10.

39. *Soda*.—A girl of 9 drank a caustic soda solution by mistake for cold water ; oesophageal obstruction.

40. *Sulphuric Acid*.—Mistake. Slight case.

41. *Opium*.—Two cases, accidental.

Two cases of attempted suicide. These were two servants of the same age (20), admitted on the same day (November 11th); in one case a servant had quarrelled with her mistress, and in the other a lover had quarrelled with his.

42. *Belladonna*.—(1) Boy, aged 3, drank linimentum belladonnæ, quantity unknown; convulsions, pupils fixed and dilated; belladonna rash on third day, lasting 5 days. (2) Girl, aged 3, drank 2 drachms of fatus belladonnæ; semi-convulsed, pupils fixed and dilated, face flushed, breathing rapid; stomach pump was used and charcoal given; convulsion followed; belladonna rash on second day, lasting 3 hours; dilatation of pupils lasted 3 days; Herpes on lips.

43. *Strychnia*.—Attempted suicide. Was said to have swallowed 2 ounces of liquor strychniae.

44. *Chloral*.—A man, aged 60, took 2 ounces of chloral (probably syrup) by mistake.

*Table showing the Average Stay of the Medical Cases
in Hospital.*

Patients discharged in 1880 = 1956. Total pernoctations = 63,895. Average stay = 33 days.

Fatal cases = 385. Total pernoctations = 8,717. Average stay in Hospital = 22 days.

Patients remaining in January 1st, 1881 = 199. Total pernoctations = 6,884. Average stay in Hospital = 34 days.

Average stay in Hospital of all Medical Cases = 31 days.

SURGICAL REPORT.

TABLE I.

Showing the Total Number of Cases under Treatment during the Year 1880, with the comparative Frequency and Mortality of each Disease at different Ages.

DISEASE.		GENERAL DISEASES.										TUMOURS.	
Erysipelas—		Carcinoma—											
a. Cutaneous ..		a. Soft ..											
b. Cellulo-Cutaneous ..		b. Hard ..											
Septicemic ..													
Pyæmia ..													
Hysteria ..													
Rheumatism—													
Gonorrhœal ..													
Rickets ..													
Syphilis—													
a. Primary Sore ..													
b. Lateral Manifestations ..													
c. Hereditary ..													
Total.													
Under 5.		Discharged.											
— 10.		Discharged.											
— 20.		Discharged.											
— 30.		Discharged.											
— 40.		Discharged.											
— 50.		Discharged.											
— 60.		Discharged.											
Over 60.		Discharged.											
Died.		Died.											
Discharged.		Died.											
Discharged.		Died.											
Discharged.		Died.											
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Discharged.		Died.											
Discharged.		Died.											
Discharged.													

TABLE I (continued).

Disease.	Tumorous (continued).						Total.
	Died.	Discharged.	Died.	Discharged.	Died.	Discharged.	
	Under 5.	- 10.	- 20.	- 30.	- 40.	- 50.	Over 60.
Epithelioma	58	46	9	3	..	..	1
Rodent Ulcer	8	2	1	..	..	..	..
Sarcoma	1	1	4	3	1
Myxoma	6	8	..	..	..
Fibroma	5	19	..	..	..
Lipoma	2	..	..	..	..
Chondroma	10	4	..	..	..
Osteoma	2	..	..	..	..
Lymphadenoma	1	1	..	..	..
Adenoma	22	4	18	..	..
Papilloma	7	1	6	..	..
Lupus	10	4	6	..	..
Keloid	1	..	..	..	..
Cysts—	7	4	3	..	..
a. Congenital	28	11	17	..	..
b. Sebaceous	9	2	7	..	..
c. Simple
Malformations—	19	5	14	..	..
a. Cleft Palate..	29	17	12	..	..
b. Harelip	1	..	..	..	..
c. Webbed Fingers

TABLE I (*continued.*)

TABLE I (*continued*).

DISEASE.		Under 5.		— 10.		— 20.		— 30.		— 40.		— 50.		— 60.		Over 60.		
		Discharged.																
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
DISEASES OF THE EYE (continued.)																		
A. Conjunctiva (continued)—																		
Granular Ophthalmia :																		
Phlyctenular " :																		
Rheumatic " :																		
Pterygium :																		
Papilloma :																		
B. Cornea—																		
Keratitis :																		
Do. Intestinal :																		
Hypopyon :																		
Ulcers :																		
Opacity :																		
Staphyloma :																		
Fibro-cellular growth :																		
C. Iris—																		
Iritis :																		
Rheumatic Iritis :																		
Synechia :																		
Irido-cyclitis :																		
Oculaded Papil :																		
Mydriasis :																		
Eccentric Pupil :																		
Total.																		
10																		
7																		
3																		
27																		
14																		
5																		
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TABLE I (*continued*).

TABLE I (continued.)

Disease.	Diseases of the Eye (continued).						Total
	Under 5.	- 10.	- 20.	- 30.	- 40.	- 60.	
I. Strabismus—							
Internal	26
External	6
II. Hypermetropia and Astenopia—							
Hypermetropia	11	15	..	..	..	4
Astigmatism	2	4	..	..	..	2
Hemianopsia	1	..	..	..	1
Myopia	5	2	..	..	1
Amblyopia	2	2	..	..	1
III. Diseases of the Lachrymal Apparatus—							
Fistula	1
Lachrymal Obstruction	1
Dacryo-Ostitis	1
IV. Diseases of the Eyelids—							
Entropion	2
Ectropion	1
Symblepharon	1
Nevus	1
Abscess	1
Tinea	1
Trichiasis	1
V. Diseases of Orbit—							
Congenital Cyst	1
Old Abscession, &c.	6

TABLE I (*continued.*)

TABLE I (continued).

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DISEASE.	Total.			Under 6.			— 10.			— 20.			— 30.			— 40.			— 50.			— 60.				
	M	F	A	M	F	A	M	F	A	M	F	A	M	F	A	M	F	A	M	F	A	M	F	A		
DISEASES OF DUCTLESS GLANDS.																										
Thyroid ..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
DISEASES OF DIGESTIVE SYSTEM.																										
Mouth—																										
Stomatitis ..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cancrum Oris ..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcer ..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gums and Jaws—																										
Stiff Jaw ..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alveolar Abscess ..	4	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tongue—																										
Glossitis ..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcer ..	2	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
DISEASES OF FAUCES AND PALATE.																										
Enlarged Tonsils ..	2	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tonsillitis ..	23	13	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscess ..	3	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcer ..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
DISEASES OF OESOPHAGUS.																										
Stricture ..	6	2	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE I (*continued*).

TABLE I (continued).

Disease.	Total			Under 6.			— 10.			— 20.			— 30.			— 40.			— 50.			— 60.			Over 60.		
	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R	M	P	R
DISEASES OF THE URINARY ORGANS (cont'd.).																											
Bladder (continued)—																											
Calculus—																											
Uric Acid ..																											
Phosphate ..																											
Retention of Urine ..																											
Incontinence ..																											
Recto-Vesical Fistula ..																											
Symptoms of Stone ..																											
Prostate—																											
Hyper trophy ..																											
Abscess ..																											
Urethra—																											
Stricture—																											
a. Congenital ..																											
A. Simple ..																											
c. Traumatic ..																											
c. Perineal Abscess ..																											
" Fistula ..																											
Extravasation of Urine ..																											
Catheter broken in a Stricture ..																											
GONORRHOEA AND ITS COMPLICATIONS.																											
Gonorrhoea ..																											
Warts ..																											
Bubo ..																											

DISEASE.	DISEASES OF GENERATIVE SYSTEM (Male).									
	Penis—		Scrotum—		Tunics Vaginales—		Cord—		Testis—	
	M	F	M	F	M	F	M	F	M	F
Total.	98	18	2	2	18	18	2	2	19	8
Disecharged.	98	18	2	2	3	3	1	1	19	8
Died.	98	18	2	2	3	3	1	1	19	8
Under 6.	98	18	2	2	3	3	1	1	19	8
— 10.	98	18	2	2	3	3	1	1	19	8
— 20.	98	18	2	2	3	3	1	1	19	8
— 30.	98	18	2	2	3	3	1	1	19	8
— 40.	98	18	2	2	3	3	1	1	19	8
— 50.	98	18	2	2	3	3	1	1	19	8
— 60.	98	18	2	2	3	3	1	1	19	8
Over 60.	98	18	2	2	3	3	1	1	19	8

TABLE I (*continued*).

TABLE I (*continued*).

TABLE I (continued).

DISEASE.	TOTAL.			Under 5.			— 10.			— 20.			— 30.			— 40.			— 50.			— 60.				
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F		
<i>Injuries of Head (continued)—</i>																										
Fractured Vault—																										
Compound	6	3	1	1	1	1	..	1	..	2	1	..	1	..	1	..	1	..	1	..	1	..	1
Fractured Base..	11	3	7	1	1	..	1	..	16	1	8	..	..	1	..	2	1	1	..	1	..	1
Concussion	46	6	1	1	1	..	1	..	..	..	..	..	..	1	..	2	..	1	..	1	..	1
<i>Injuries of Face—</i>																										
Contusions	1	..	1	..	..	1	..	..	4	..	..	..	2	..	..	2	..	..	1	..	1
Wounds—						18	6	5	2	..	..	..	..	2	..	..	..	3	..	..	4	..	..	3	..	..
Pistol Shot	10	8	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Lacerated	
Fractures	
<i>Injuries of Eye—</i>																										
Contusions	7	5	2	..	..	2	..	..	1	..	..	..	..
Wounds	19	15	4	..	..	3	..	..	4	..	..	3	..
Pistol Shot	1	..	1	..	..	1	..	..	1	..	..	1	..
Foreign Bodicee in Eye	6	5	1	..	..	3	..	..	1	..	..	1	..
<i>Injuries of Ear—</i>																										
Wound...	1	1	..	..	..	1	..	1	..	1	..	1	..
<i>Injuries of Neck—</i>																										
Wounds—																										
Suicidal
Contusion
Scald of Gлоттis

TABLE I (*continued*).

TABLE I (*continued*).

Disease.	Injuries of Lower Extremity.									
	Under 5.	- 10.	- 20.	- 30.	- 40.	- 50.	- 60.	Over 60.	Died.	Discharged.
Contusions	28	19	9	..	1	..	6	..	4	..
Impacted Needles	..	2	2	..	..	..	1	..	..	..
Crushes	..	9	6	1	2	..	3	..	..	..
Wounds—										
Of Thigh	..	..	..	..	7	7	..	..	..	..
Over Knee	..	..	..	..	9	8	..	..	..	..
Of Leg..	..	..	..	..	22	18	3	1	..	..
Of Foot	..	..	..	..	7	4	2	1	..	..
Fracture of Femur—										
Simple ..	..	..	..	..	48	34	13	1	12	..
Compound ..	..	..	..	..	..	1	2	..	..	..
Ununited ..	..	..	..	..	..	2	..	..	..	..
Fracture of Cervix Femoris—										
Intracapsular ..	..	..	..	..	..	12	5	7	..	..
Fracture of Patella	..	..	..	..	..	28	21	7	..	..
Fracture of both Bones of the Leg—										
Simple ..	..	..	..	..	..	180	106	22	2	..
Compound ..	..	..	..	..	..	15	12	1	2	..
Fracture of Tibia alone—										
Simple ..	..	..	..	..	..	37	29	8	..	..

TABLE I (*continued*)

ABSTRACT OF TABLE I,

With Average Duration of Surgical Patients in the Hospital.

Discharged Cured or Relieved .. .. .. .. ..	..	$\left\{ \begin{array}{l} M. = 2177 \\ F. = 1814 \end{array} \right.$
Died .. .. .. .. .. .. .. .. ..	..	$\left\{ \begin{array}{l} M. = 121 \\ F. = 56 \end{array} \right.$
Remaining in at the end of the year 1880 * .. .. ..	..	$\left\{ \begin{array}{l} M. = 216 \\ F. = 105 \end{array} \right.$
Average stay of Women .. .. .. .. ..	..	30·53 days.
,, Men .. .. .. .. ..	..	29·409 ,,

Average stay in the Hospital of all Surgical Patients = 29·96 days.

* These cases are not included in Table I.

APPENDIX TO TABLE I.

GENERAL DISEASES.

TUMOURS.

Osteo-Sarcoma.—A large tumour of this variety was removed from the right Ilium of a shipwright, aged 46. The growth formed a prominent, rounded swelling in Scarpa's triangle, which filled that space, and could be followed upwards to the Iliac Fossa, to which it was attached. An incision from the lower part of the growth on the Thigh was carried upwards and outwards along the inner border of the Iliac Crest. The tumour was exposed by cutting through the Iliacus muscle, and separated from the Ilium with a chisel. Several independent nodules in the thigh were removed, and the wound was then washed out with a solution of Chloride of Zinc. On the second day after the operation Carboloria supervened, with a temperature of 105° 2'. The antiseptic dressings were then modified so as to keep the wound free from contact with Carbolic acid. The man died on the eighth day with symptoms of Pyæmia. It must be said, however, that he had a small Perforating Ulcer on the foot whilst under treatment.

Glioma.—Excision of the globe for Glioma in an infant, aged 3, was followed after 24 days with symptoms of Meningitis, which terminated fatally.

Lipoma.—A man, aged 60, who was under treatment for Prolapse of the Rectum, was subject to a tumour of the right Breast of six years' duration. It had the usual characters of a fatty tumour, and was as large as an orange. The greater part was external to the nipple.

Epithelioma.—One of the deaths was that of a man, aged 39, not subjected to operation, who died with secondary disease in the glands and liver. A carman, aged 59, suffered the removal of the lower part of the Rectum for this disease. The symptoms had existed for nine months. The whole circumference of the gut at the lower part was involved for a space of two to three inches. After the usual incision backwards, the Intestine was freed by dissection and by tearing with the finger till the loop of an Ecraseur could be passed beyond the disease. A piece of Peritoneum, as large as a half-crown, came away with the Gut. He lived for 25 days, and after symptoms of Peritonitis of the lower part of the Abdomen had passed off, he at length died exhausted. His nutrition was bad from the first, and he never improved in that respect.

A woman, aged 41, on whom the same operation was performed, recovered.

DISEASES OF THE NERVOUS SYSTEM.

Meningocele.—This occurred in a boy aged 3 months, and was situated over the Anterior Fontanelle. The tumour was the size of a Hen's egg. The two sides of the child's head were not symmetrical; the right side was flattened, and the left side showed a corresponding projection over the lateral region of the Vault. The Cyst was tapped and pressure applied, but the cavity was found to be refilling when the patient left the Hospital.

DISEASES OF THE CIRCULATORY SYSTEM.

Hæmophilia.—A sailor, aged 20, presented a large swelling at the back of the left knee and leg of six weeks' duration, which had the characters of a subcutaneous collection of blood. On account of the severe pain and tension a

puncture was made in the calf. From this opening blood continued to ooze for three days, during which an ice-bag was applied. Two months afterwards suppuration occurred in the swelling, and pus was evacuated by incision, yet no considerable Hæmorrhage followed. The patient had been subject to painful swellings of the joints, and to long bleedings after trifling injuries. A brother, aged 10, was the only other member of the family thus affected.

Aneurism.—The two cases of Aneurism that occurred during the year were treated successfully.

One of them, a labourer, aged 49, became the subject of Popliteal Aneurism three weeks before admission. He gave a history of pain about the knee which had troubled him for two years. He had had syphilis in youth. The Aneurism was as large as a Hen's egg, and could be completely emptied when the vessel above was compressed. Esmarc's bandage was applied for one hour and forty minutes, and during the last half of that time Chloroform was given. The pulsation, which was thought to be less after the removal of the bandage, was next day as strong as at first. After 48 hours the Femoral Artery was tied at the lower end of Scarpa's triangle. Two cat-gut ligatures were applied near together, and the artery between them divided. He left the Hospital well, but returned after five months with a fresh swelling in the ham; it had occurred with sudden pain whilst he was at work. The pulsation on this occasion was very faint. The limb was bandaged in flannel for a month, and he was then directed to get about, but he came back again in a few days with the same symptoms. Flexion was used for 25 days, after which the aneurism was cured.

The second case was that of a Carman, aged 35. He was in the habit of driving a pair of horses. The swelling had existed for eight weeks, and had increased rapidly during the ten days previous to admission. There was a large Aneurism in the left Axilla, and the whole limb was oedematous. The size of the tumour was not diminished to any extent by controlling the Subclavian Artery. That vessel was ligatured with thick silk under Antiseptic precautions, and the ends cut off close to the knot. On the sixteenth day the Aneurism burst, and a pint of blood was lost. On the eighteenth day Hæmorrhage recurred to the amount of three-quarters of a pint, whereupon the limb was removed at the Shoulder joint. He made a good recovery.

DISEASES OF THE OESOPHAGUS.

A boy, aged 2, was admitted with a stricture of the tube three weeks after he had swallowed Oil of Vitriol. A perforation of the Oesophagus, opposite the seventh Dorsal Vertebra, occurred on the third day into the Pleural Cavity, and he died of acute Pleurisy.

A woman, aged 33, died five months after taking Nitric Acid with Suicidal intent. She became emaciated, and died with Pericarditis.

DISEASES OF JOINTS.

Synovitis.—A labourer, aged 48, who had had some pain about the knee for two years, was admitted with acute effusion into the joint. After a month in Hospital, pus formed within the articulation; six ounces of that fluid were taken away with the Aspirator. The operation was repeated on the next day. On the third day the joint was freely incised on each side and drained. Much constitutional disturbance followed, and he died a week after the last operation.

DISEASES OF THE OVARY.

Of the twenty-two cases, seventeen were submitted to operation, of whom five died. Two patients were relieved by tapping. Two were discharged as unfit for interference. One woman, aged 19, died from Suppuration of the Cyst without operation.

DISEASES OF THE CELLULAR TISSUE.

A housekeeper at the Old Bailey, aged 81, had had a swelling on the left side of his neck for two years, which was said to be due to enlarged Glands. On 20th March he bade farewell to his wife, who was dying of Typhoid Fever. He was much affected on leaving the room, and as he passed the threshold the swelling in his neck burst and bled profusely. Bleeding recurred each day till 23rd March, when he was brought to the Hospital. The opening was above the left Clavicle, close to the outer border of the Sterno-Mastoid muscle. The aperture was enlarged and the Abscess cavity plugged with lint soaked in Tinctura Ferri Perchloridi. Though conscious, he never spoke again, and was paralysed on the right side. Four days after admission he died with Pleuro-Pneumonia. On dissection the left Common Carotid Artery, the Jugular Vein, and Vagus Nerve, were found on the floor of an Abscess cavity behind the Sterno-Mastoid muscle. The artery was destroyed to the extent of $1\frac{1}{4}$ to 2 inches, and the ends were plugged with firm clots; a longer portion of the Vein was wanting, and still more of the Vagus Nerve. The left Subclavian and Brachio-Cephalic veins were closed by fibrous tissue, having undergone complete obliteration.—(*Medico. Chir. Trans. Vol. LXIV.*)

DISEASES OF THE CUTANEOUS SYSTEM.

An Omnibus driver, aged 65, whose instep became sore fourteen days before admission, from the pressure of his boot, was affected with superficial Gangrene of the left foot and lower part of the leg. He was a man of broken health, and Albumen was present in his urine. After five days, during which the disease extended up the limb, amputation was proposed, but declined by the patient, who died two days later.

A girl, $2\frac{1}{2}$ years old, was the subject of a very extensive hairy Mole. The mother had been frightened during pregnancy by her husband, who came into her room intoxicated, and threw a dog on the bed in which she was lying. The child's back was almost completely covered with a black hairy Mole, and numerous patches of the same character occurred on other parts of the body. There was besides over the Pubes a large soft fibrous growth resembling the substance of a Cow's Udder. The greater part of this mass was removed, but it showed some tendency to recur before the patient left the Hospital.

LOCAL INJURIES.

Bites of Rats.—A mother left her infant, aged 4 months, asleep in bed with two other children. On her return the baby's scalp was found bitten by rats in 20 to 25 places, and the skin of the forehead near the right Frontal Eminence was eaten down to the bone over a space three-quarters of an inch square.

TETANUS.

Seven days after a severe scalp wound, a man, aged 34, showed symptoms of Tetanus. They increased in severity, and he died exhausted on the twenty-first day of the disease.

The second case of Tetanus occurred in a woman, aged 75, who had suffered a Comminuted Fracture of the Radius, and an oblique wound 1½ inches in length over the front of the wrist at the Ulnar border. The skin and subcutaneous tissue with a Cutaneous Nerve were thus divided and the bone was reached. On the sixth day spasms began in the wounded arm. They became general, and death followed in two days.

GANGRENE—

Three cases of spreading traumatic gangrene occurred. The patients were males, aged 34, 39, and 42 respectively. The first and last were treated by Amputation at or near the shoulder joint, and both died. The man, aged 39, a Law-writer of intemperate habits, was attacked by the disease after a simple Fracture of the leg. Free incisions were made in the limb, and brandy was given in large quantities. A line of demarcation formed, and Secondary Amputation of the leg was performed with a successful result.

INJURIES OF VESSELS.

A woman, aged 25, had attempted to commit Suicide three weeks before admission by cutting the front of her left elbow with a carving knife. The wound healed, but broke down again on the seventeenth day, when smart Hæmorrhage occurred. Bleeding again came on before her admission. The Brachial Artery was therefore exposed at the elbow, and a Catgut ligature applied to the vessel above and below the bleeding aperture.

INJURIES OF THE ABDOMEN.

A man, aged 53, was thrown whilst fighting, and his antagonist jumped upon his belly. He died in 24 hours. The Duodenum, near its termination, was torn, and presented an opening as large as a sixpenny piece, through which the contents of the bowel had passed and caused acute inflammation of the Peritoneum.

A similar lesion was found in a man, aged 52, from the passage of a wagon wheel across the body. He vomited once, and a speck of blood was noticed in the matter brought up. He died, after 24 hours, of Peritonitis. The Intestinal contents had escaped into the Serous cavity through a rent in the last part of the Duodenum, that did not involve the whole circumference of the gut.

A boy, aged 11, was gored by a bull. He had a wound $1\frac{1}{2}$ inches long in the left groin, through which a knuckle of Intestine protruded. No difficulty was found in returning the bowel, and the wound healed readily under Antiseptic dressing, leaving a Ventral Hernia, for which a Truss was applied.

FRACTURES :

A girl, aged 25, underwent the operation of division of the neck of the Femur on 28th June. She fell on 19th November and suffered a fracture apparently through the cicatrix in the Femur. She was treated in the ordinary way, and made a good recovery.

Of eighteen cases of Compound Fracture of the lower extremity, eleven were treated with simple dressings, and seven Antiseptically. Of the eleven cases one died, viz., a girl aged 19, who threw herself out of a window in a fit of Insanity. She could not be controlled, and at length refused food. Of the Antiseptic cases, five recovered and two died. A man, aged 53, appeared to die from the shock of the injury; the other death was that of a man, aged 24, who had a severe Compound Fracture of the leg. He was treated for eight days antiseptically, but as the discharges came through the dressings, they were abandoned. He died of Pyæmia.

SURGICAL OPERATIONS PERFORMED.

AGE AND SEX.

OPERATIONS.

	Under 6 Years.		6—		10—		20—		30—		40—		50—		60—		70—		TOTAL.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Excision of Joints and Bones (continued).																								
Elbow	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ununited Fracture of Leg
" " Arm
" " Thigh
<i>Removal of Sequestra:</i>																								
From Head and Face
" Upper Extremity
" Lower Extremity
AMPUTATIONS.																								
<i>Primary:</i>																								
Arm
Forearm
Parts of Hand
Thigh
Parts of Foot
<i>Secondary:</i>																								
Shoulder
Forearm
Leg

OPERATIONS.

Removal of Tumors (continued).

	AGE AND SEX.																								
	Under 6 years.			6— 10—			20— 30—			40— 50—			60— 70—			70— Total.			Discharged.			Died.			
	M	F	M	M	F	M	M	F	M	M	F	M	M	F	M	F	M	F	M	F	M	F	M	F	
Sarcoma	1	1	2	..	1	..	3	1	..	3	3	1	..	1	..	14	6	13	6	1	..	
Fibroma	4	..	2	2	..	1	1	..	1	..	4	4	4	4	..	1	..	
Lipoma	1	3	..	3	..	1	5	1	..	1	..	1	6	1	6	..	..
Osteoma	1	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..
Enchondroma	1	..	1	..	..	..
Myxoma	
Papilloma	8	..	..	..	..	..	..	..	..	1	..	1	7	1	7	..
Epulis	1	..	1	1	..	1	1	..	2	..	..	..	..	..	3	6	..	..
Cysts—																									
Sebaceous	1	..	1	2	..	1	2	6	1	1	..	..	..	9	14	9	14	..
Dermoid	2	1	2	..	..	1	2	3	..	1	..	..	..	4	2	4	2	..
Simple	2	6	2	6	..
Removal of—																									
Upper Jaw	3	1	2	1	..
Penis..	3	..	3	..	..
Testis
Adenoid Tumors:																									
Breast	14	..	14	..	..
Parotid Gland	3	1	3	1	..
Enlarged Gland..	2	..	2

SURGICAL OPERATIONS PERFORMED (*continued*).

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OPERATIONS.	AGE AND SEX.																		Discharged.		Died.	
	Under 6 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Discharged.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	P		
REMOVAL OF CALCULI.																						
By Lithotomy—Lateral	2	..	..	..	2	..	..	..	..	1	..	..	..	..	..	5	..	..	..
Lithotomy	1	..	..	..	..	..	1	..	..	..
Litholapaxy	1	..	..	..	..	..	1	..	..	..
Incisions.																						
Colotomy	1	..	..	..	..	..	2	1	..	1	
Ovariotomy	8	..	6	..	3	..	..	17	..	12	
For Hernia:																					5	
<i>Iugisca:</i>																						
Herniotomy—																						
Opening of Sac	4	1	..	..	8	..	..	1	..	5	
Without opening of Sac	1	..	..	..	1	..	2	..	1	..	
<i>Femoral:</i>																						
Herniotomy—																						
Opening of Sac	1	..	4	..	
Without opening	1	..	2	..	

SURGICAL OPERATIONS PERFORMED (*continued*).

STATISTICS OF ANÆSTHETICS.

During the year 1880 Anæsthetics were administered 2,542 times.

Chloroform was administered	1,055	times.
Nitrous Oxide Gas alone	99	"
Ether alone	43	"
Ethidene, preceded by Nitrous Oxide	41	"
Ether, " "	1,304	"
	<hr style="width: 20%; margin-left: 0; border: 0.5px solid black;"/>	
	2,542	

A man aged 61, suffering from Strangulated Inguinal Hernia, died under the influence of Ether. He had been delirious during the previous night. His pulse was irregular and very feeble, and he had constant vomiting. During the operation the pulse became imperceptible, and finally respiration ceased. At the necropsy, the heart substance was found to be slightly fatty, the cavities were nearly empty, no clots. The lungs were Emphysematous ; all the posterior parts were engorged with blood.

STATISTICS OF THE DENTAL DEPARTMENT.

Number of Cases..	2,870
Extractions	2,339
Stoppings..	600
Miscellaneous Cases	337

The extractions were chiefly roots of teeth.

Amongst the Miscellaneous Cases were :—Nine of Double and Single Compound Fractures of the Lower Jaw, one of which occurred in a patient aged 72, and one was an Ununited Fracture of three months. All were treated with Interdental splints. In three cases in which either the Right or Left Superior Maxilla had been extirpated for disease, Artificial Dentures were supplied, and five of Cleft Palate were treated by mechanical appliances. There were five cases of Closure of the Jaws ; seven of Abscesses, and eight of Necrosis of the Superior or Inferior Maxilla ; three cases of Rigg's Disease ; one case of Congestion, and one of Hypertrophy of the Gums ; one of Antral Disease ; two of Epulis ; seventeen of Irregularity treated by Vulcanite Plates ; six of Glandular enlargement arising from Dental Irritation ; one of Mercurial Poisoning ; two cases of Pivoting ; four of Transplantation, and two of Replantation ; thirteen of Scaling, besides several cases of Ulceration and Fistulae of the Cheek.

APPENDIX

TO THE

TABLE OF OPERATIONS.

EXCISIONS OF BONES AND JOINTS :

Of the nine cases, one was that of a sailor, aged 35, on whom the operation was performed for Chronic Rheumatic Arthritis of the knee. Recurrent Haemorrhage occurred, and blood escaped beyond the Antiseptic dressings. On the sixth day he showed signs of Carboloruria, and died of Pyæmia on the eighth day.

UNUNITED FRACTURE :

A sailor, aged 33, had suffered a Fracture through the middle of the thigh during a voyage. The fragments were not united. The broken ends were exposed by an incision along the outer side of the limb and freshened. Antiseptics were used, but abandoned on the tenth day on account of the occurrence of Carboloruria. He ultimately made a good recovery.

AMPUTATIONS :

Primary —

Thigh.—A guard, aged 30, suffered Primary Amputation of the left Thigh and right Leg. On the fourth day the Antiseptics were discontinued from the leg on account of the sloughing of the wound. He died of Septicæmia on the fifteenth day.

A signalman, aged 48, died of shock the day after the operation.

Both the deaths followed after Railway injuries.

Secondary —

Shoulder.—For rapidly Spreading Traumatic Gangrene after Compound Fracture of the Radius in a man aged 34. Gangrene of the left lower extremity in connection with a laceration of the thigh supervened, and he died on the sixth day.

For Disease —

Shoulder.—For Sarcoma of the Humerus. The man died of Haemorrhage soon after the operation.

In the other case the operation was performed after the Rupture of an Axillary Aneurism.

Thigh.—Of the four deaths one was due to disease of the Viscera subsequent to amputation for Sarcoma, one to Haemorrhage on the second day, and one from disease of the Lung. The fourth case, that of a girl aged 14, died with Suppression of Urine. Albuminuria was present at the time of operation.

Arm.—The death occurred after amputation for Spreading Gangrene of the limb. The disease returned in the stump and extended to the trunk.

Among the sixty-four Amputations there were nine deaths, only one of which was attributable to Blood Poisoning. Teale's operation was performed three

times—for removal of the arm, of the leg, and of the thigh. The foot was amputated after Roux's method in one case, and by Syme's method in all the other cases.

REMOVAL OF TUMOURS :

Scirrhus.—Amputation of the breast for a suppurating Cancer was performed on a woman, aged 57, and some diseased glands were removed from the Axilla through a second incision. The next day the evening temperature was 103·6°. On the third day the evening temperature fell to normal. On the fifth day the evening temperature was 103°. On the thirteenth day a severe and prolonged Rigor occurred with a temperature of 103·6°. The breast wound was then nearly healed, that in the Axilla was suppurating. On the fourteenth day Antiseptics were discontinued as there was evidence of purulent inflammation of the wrist and knee. After death Pus was found in these joints.

Lipoma.—A small fatty tumour was removed by the House Surgeon from the flank of a woman, aged 67, just above the right Iliac Crest. At the end of a week the Antiseptics were left off. She died on the sixteenth day with effusion into the Serous cavities. She had moreover malignant disease of the Liver and Pancreas.

Osteo-Sarcoma.—The tumour was removed from the Iliac fossa. Death followed from Pyæmia. (See Appendix I.)

Upper Jaw Removed.—A man, aged 57, died of Simple Erysipelas.

INCISIONS :

Lithotomy.—A stone, consisting of Uric acid, weighing 680 grains, was removed from a man aged 62, by the lateral operation. His recovery was slow but complete.

The case of Lithotripsy was that of a man aged 51, who had a Uric acid Calculus that was crushed in eight sittings. The case of Litholapaxy, in a man aged 55, did well.

Trachætomy.—A man, aged 47, recovered, on whom the operation was done for Syphilitic Laryngitis. A boy, who had had Scald of the throat, died of Pneumonia, and the girl died of Dyspœsia in consequence of disease of the Cervical Vertebrae.

Osteotomy.—All of these operations, which were after Mac Ewen's method, were for Genu Valgum, except in one case of Ricketty deformity of the Tibia. All were treated antiseptically. A case of Genu Valgum in a boy aged 16, of two years' duration, treated by double Osteotomy, was the subject of Albuminuria after Scarlet Fever. He usually passed from $\frac{1}{2}$ — $\frac{1}{4}$ of Albumen. The day after operation his pulse was 97·6, and he passed Albumen $\frac{1}{2}$. He did well, and the amount of Albumen in his Urine diminished, but some was still present when he left the Hospital.

MISCELLANEOUS OPERATIONS :

Talipes Varus.—A wedge shaped piece of the Tarsus was removed to correct this deformity in a boy aged 7.

An operation for closing a Recto-Vesical Fistula was done on a man aged 30, who died of Uræmia after 8 days.

Revision of Nerves.—A man, aged 28, who had Paresis of Motion and Sensation in the hand and forearm in consequence of a wound of the Median Nerve just above the elbow three years previously, was submitted to this operation. The bulbous ends of the Nerve were dissected up, freshened and reunited with eight catgut sutures. The restoration of function was insignificant.

SUB-TABLE, SHOWING THE NUMBER OF CASES OF ERYSIPELAS, PYÆMIA, &c.

**APPENDIX TO THE SUB-TABLE OF ERYSIPelas,
PYÆMIA, &c.**

Erysipelas occurring in Hospital:

Cutaneous Erysipelas occurred in Hospital to 13 Males and 8 Females. Of the 8 women one had an attack of Facial Erysipelas whilst under treatment for disease of the elbow, and another had Erysipelas on the back whilst in Hospital for Fracture of the Fibula. In two cases it arose during the healing of Burns, in one during Morbus Coxe, and in one it complicated an Ulcer of the leg. The two remaining cases became affected after incision of Abscesses. Among the Males Erysipelas appeared in two cases of Scalp wound, after a contused wound of the leg, and after a Compound Fracture of the arm. It complicated the course of the following cases, one of Disease of the ankle, one of Chronic Ulcer of the leg, two of Necrosis, two of Suppuration of the hand, and one of Suppurating Bursa Patellæ. It occurred in another case after puncture of a soft Sarcoma over the Temple. The fatal case was that of a patient aged 28, who had a slight attack of Erysipelas in the course of Hip Disease. He died of Amyloid change in the Viscera some time after the blush had passed away.

Erysipelas after Operation:

Occurred to 12 Males and 8 Females. *Males*—In four cases after Sequestrotomy, after an Amputation of the arm, an Amputation of the Great Toe, of the Penis, and after Reamputation of the Leg for Conical Stump. It also followed an Excision of the Tongue, and of the Ear for Cancer, and the removal of a Sebaceous Cyst. Death was due to this cause after removal of the Upper Jaw from a man aged 57. One of the cases of Sequestrotomy terminated fatally, but in him the Erysipelas subsided, and he died eventually of the effects of long Suppuration.

Females—In three women after Sequestrotomy, in two cases of Amputation of the Breast, and in two after the removal of Sebaceous tumors; in one woman after incision of an Ulcer of the Rectum.

Pyæmia occurring in Hospital:

Of the six cases, the woman and a boy, aged 6, were affected with Acute Necrosis of the Tibia. In them the Pyæmia was probably coincident, if not antecedent to their admission to the Hospital. The other cases resulted from injury, viz., ruptured Urethra, crushed Toe, punctured Wound of the back with Fracture of the Spinous Process of the fourth Lumbar Vertebra, and a Compound Fracture of the Leg. This last case was the only one treated antisepically, and those dressings were left off eight days after the accident before the disease was apparent.

Pyæmia occurring after Operations:

A girl, aged 6 weeks, died after the operation for Hare Lip. The six other cases were in adults.

The recovery was that of an Amputation of the Thigh which was followed by Chronic Pysemia. The remaining cases were a Primary Amputation of the left Thigh and right Leg, an Excision of the knee for Chronic Rheumatic Arthritis, and three cases of the removal of Tumours. In these five cases antiseptics were at first used. In one they were given up before the symptoms of Pysemia appeared, and in the case of Amputation on account of sloughing of the Stump. The Excision was a case in which Hæmorrhage occurred and blood escaped through the dressings. In the other two cases the dressings were abandoned or modified when the disease declared itself.

TABLE OF AMPUTATIONS WITH THE PERCENTAGE OF DEATHS DURING THE
TEN YEARS *from 1871 to 1880 inclusive.*





